THE UNIVERSITY
of EDINBURGH

Science-Religion-and-Literature

Literary Approaches to the Field of Science-and-Religion with Margaret Atwood's *MaddAddam* Trilogy as a Case Study

Jaime Wright

A Thesis Submitted to

The University of Edinburgh, New College

In Candidacy for the Degree of

Doctor of Philosophy

Edinburgh, UK

2019

Declaration

I, Jaime Wright, hereby declare that this thesis has been composed by me and that it has not been submitted for any other degree or professional qualification.

Ph.D. Candidate

Abstract

This thesis proposes and maps a nascent subfield of scholarship within the science-and-religion field that examines the intersection of science, religion, and literature; simultaneously, it draws out and argues for the benefits of incorporating literature into science-and-religion studies. The suggested label for this body of scholarship is *the science-religion-and-literature field*. Scholarship within this proposed field is relatively new and has yet to be thus brought together. The mapping of this field is done by considering how literature is incorporated into science-and-religion studies. Although there is a growing body of scholarship that incorporates literature into science-and-religion studies, scholarship has yet to address how incorporating literature benefits the wider science-and-religion field. Therefore, this thesis argues that there are ways to incorporate literature that allow literary texts and the tools of literary analysis to bring insights to the science-and-religion field.

This thesis is composed of four parts. Part one introduces and maps the subfield of science-religion-and-literature by defining and, at times, coining key terms and phrases, providing an overview of method within the larger science-and-religion field, and mapping the proposed subfield by reviewing exemplary studies. Part two examines the use of literary theory at the intersection of literature with society, religion, and science. Part three portrays a use of particular literary texts (the case study: Margaret Atwood's *MaddAddam* trilogy) that seeks to bring insight to the science-and-religion field. The study concludes in part four by assessing various methods that have been portrayed throughout this thesis, articulating the benefits of studying literature within the science-and-religion field, and suggesting further directions of research.

Acknowledgements

Any project spanning hundreds of pages and multiple years cannot be completed alone. In line with this, I am thankful to the many people who have offered me physical and emotional support throughout the completion of this thesis.

I am extremely thankful to Prof Mark Harris, who first accepted me as a master's student and, then, continued to supervise my doctoral work. His development and oversight of the Science and Religion programme at the University of Edinburgh has provided a rigorous, yet nurturing, environment in which to combine my passions for literature, science, and religion. I am thankful for his support and encouragement as I explored with him, not only my chosen academic subject, but also the personal experiences of working in a field that can challenge one's worldview. I would also like to thank Dr Alison Jack, whose co-supervision throughout my postgraduate studies has been a source of deep joy and intellectual growth. It has been a privilege and gift to work with supervisors who were excited about my research from the start and who believed in my ability to complete this project, even when I experienced doubts.

Working among the postgraduate community at New College has been a source of friendships, community, and collegiality. I would like to especially thank Steven Stiles, Tom Breimaier, Bill Atkins, Helen Holt, Kate Snow, Sarah Agnew, Anja Pogacnik, Liam Sutherland, Takayuki Yagi, Cam Clausing, and Patrick Brown.

I would not have begun this academic journey without the not-so-gentle prodding of Barry Downing. Not only did Barry draw my attention to the Science and Religion programme at Edinburgh, but he also bought me my first relevant text, Kuhn's *Structures of Scientific Revolutions*, the summer before I began my studies. Our shared love of science and religion and his unconditional support have sustained me throughout the last five years. I could not have finished this academic journey without the practical support of local Edinburgh friends, who have allowed me to crash in their homes and update them (willingly or not) on the latest thesis progress. My loving gratitude goes out to Kat Andrews and Joe and Oliver Brewer-Lennon.

Finally, I simply would not have survived this process without the love, support, and companionship of my husband, Eric Beck. It has been a privilege to be not only his academic colleague, but also his friend and wife. I would like to thank him for his unending belief in my abilities, his reminders of my intrinsic worth and value, and his utmost patience and support, especially in the final stages of this project. This thesis has only been possible because I have had him by my side.

Contents

Part One

Introduction to Science-Religion-and-Literature

Chapter 1

Introduction to the Thesis

Introduction

There is a nascent subfield of scholarship within the larger science-and-religion field that examines the intersection of science, religion, and literature. Historian John Hedley Brooke has said that '[a] field of study is one that can be mapped',[1] and the aim of this thesis is to map this nascent field, which I propose to call *the science-religion-and-literature field*. Such mapping is done through considering how literature is incorporated into studies of or at the intersection of science and religion. Although there is a growing body of scholarship that thus incorporates literature into science-and-religion studies, scholarship has yet to address how incorporating literature benefits the wider science-and-religion field. Therefore, this thesis simultaneously argues that there are ways to incorporate literature that allow literary texts and the tools of literary analysis to bring insights to the science-and-religion field using a case study, the *MaddAddam* trilogy by Margaret Atwood. Benefits to the science-and-religion field of incorporating literature include engaging popular culture and audiences without specialist science-and-religion knowledge; contextualising and embodying science-and-religion concepts, themes, or problems that can often be theoretical or abstract; and exposing the emotional, human subject connected with science-and-religion discourse.

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[1] John Hedley Brooke, 'Science and Religion, History of Field', in *Encyclopedia of Science and Religion*, ed. J. Wentzel van Huyssteen et al. (New York: Macmillan Reference, 2003), 752.

This thesis seeks to push the boundaries of the science-and-religion field, as other recent scholarly voices within the field have also done. Gillian Straine describes the science-and-religion field thus: 'Since its inception, the field of science and religion has had dual foci: to consider how the two magisteria interrelate and to respond theologically to the world that science is discovering. The emphasis has always been on the rational and intellectual; it is a field founded on good arguments, defined positions and structured schemes'.[2] Straine then considers the significance of science-and-religion discourse for pastoral theology, suggesting that the discourse could be enriched by taking human experience and interpretation seriously.[3] The methodology Straine initially describes, which often appeals to scientific realism, method, or rationality, has again been critiqued recently by Josh Reeves, who suggests that future research within science-and-religion must be differently characterised.[4] Along the lines of such boundary shifting, this thesis hopes to show what literature can contribute to the science-and-religion field.[5]

This introductory chapter is the first of two chapters that make up Part One, which seeks to introduce science-religion-and-literature to the reader. This introductory chapter provides definitions of key terms and phrases, explores method

[2] Gillian K. Straine, 'A Future for Science and Theology in Pastoral Hermeneutics: Equipping the Shepherds', in *Forty Years of Science and Religion: Looking Back, Looking Forward*, ed. Neil Spurway and Louise Hickman, eBook, Conversations in Science and Religion (Newcastle upon Tyne: Cambridge Scholars Publishing, 2016), 83.

[3] Straine, 99.

[4] Josh Reeves, *Against Methodology in Science and Religion: Recent Debates on Rationality and Theology* (London: Routledge, 2019).

[5] Akin to how disciplines beyond religion/theology or science, such as history, social science, and philosophy, are seen to contribute to science-and-religion discourse. For example, see Philip Clayton, ed., *The Oxford Handbook of Religion and Science* (Oxford: Oxford University Press, 2008).

within science-and-religion, and provides an overview of the thesis. Chapter 2 maps the nascent field by reviewing exemplary scholarship within it.

Definitions

This section will explain the use of key terms and phrases utilised within this thesis.

Religion

The term *religion* is notoriously difficult to define, and it could be argued that the entire field of religious studies exists to understand what constitutes *religion*. The term's utility has also been criticised.[6] In his book *Territories of Science and Religion*, Peter Harrison traces the history of the term *religion*, noting how different its use has been from how we use the term now: 'Between Thomas's [Thomas Aquinas] time and our own, *religio* has been transformed from a human virtue into a generic something, typically constituted by sets of beliefs and practices. It has also become the most common way of characterizing attitudes, beliefs, and practices concerned with the sacred or supernatural.'[7] Within cultural anthropology, religion is often considered a 'symbolic system, enacted socially through ritual practice and expressions of belief, that addresses human existential questions and meanings' that 'is grounded in and shaped by dynamics of social action, cultural change, and political

[6] For example, see Timothy Fitzgerald, 'A Critique of "Religion" as a Cross-Cultural Category', *Method and Theory in the Study of Religion* 9, no. 2 (1997): 91–110.

[7] Peter Harrison, *The Territories of Science and Religion* (Chicago, IL: University of Chicago Press, 2015), 7. Italics original.

engagement'.[8] This thesis will not attempt to provide its own simple definition of religion; rather, its use of the term is intended to include a wide range of beliefs, practices, institutions, and worldviews. This thesis acknowledges the complexity of the term and the copious connotations attached to it. It will be maintained that religion is not a monolithic entity, such that one could use the plural of the term *religions*. The term is also intended to include spirituality and spiritualities, as well as theology and theologies. In many ways, thinking about use of the term in the science-and-religion field, the term *religion* continues to be useful in that it aids the contrast between *religion* and *science*. If *religion* and *science* were not delineated as separate entities, the field of science-*and*-religion (definition below) would not exist.

Science

The term *science* is also difficult to define, and one could also refer to *sciences* in order to avoid a sense of science as monolithic in essence or practice. The term *scientist* was coined by Willian Whewell in the early nineteenth century.[9] In the Middle Ages, *science* referred to the mental condition of possessing certain knowledge of something, via a logical demonstration, as well as to any discipline with its own domain of enquiry, principles, and methodology.[10] The Latin word *scientia* means 'knowledge'; thus, a *scientist* is 'one who makes knowledge'.[11] Scientists

[8] Luis A. Vivanco, ed., 'Religion', in *A Dictionary of Cultural Anthropology* (Oxford: Oxford University Press, 2018).

[9] Peter John, 'History of Science', in *Science, Technology, and Society: An Encyclopedia*, ed. Sal Restivo (Oxford: Oxford University Press, 2006).

[10] Johannes M. M. H. Thijssen, 'Natural Philosophy', in *Encyclopedia of Medieval Philosophy*, ed. Henrik Lagerlund (Dordrecht: Springer, 2011).

[11] John, 'History of Science'.

would have previously been referred to as *natural philosophers*—the Greek phrase *philosophia* meaning 'friend of wisdom'.[12] Natural philosophy is the philosophy of the one nature of things, in which the many individual things of nature participate.[13] Just as Peter Harrison traces the history of *religion*, he traces the history of the term *science*.[14] In considering understandings of science, of note is Thomas Kuhn's *The Structures of Scientific Revolutions*, which challenges linear notions of scientific progress.[15] Current work by historians of science avoids essentialist notions of science, which usually appeal to the scientific method.[16] Once again, acknowledging the difficulty in defining *science*, this thesis will use the term to refer to a wide range of disciplines, practices, methods, worldviews, institutions, and products. The term is also intended to include technology and technological products.

Literature

The same definitional challenges that face *religion* and *science* also face the term *literature*. After attempting to define *literature* variously as 'imaginative writing',[17] that which 'transforms and intensifies ordinary language' and 'deviates systematically from everyday speech',[18] and 'a kind of *self-referential* language',[19]

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[12] John.

[13] Klaus Michael Meyer-Abich, 'Natural Philosophy', in *Religion Past and Present Online*, ed. Hans Dieter Betz et al. (Leiden: Brill, 2011), http://dx.doi.org.ezproxy.is.ed.ac.uk/10.1163/1877-5888_rpp_COM_024039.

[14] Harrison, *The Territories of Science and Religion*, 11–14.

[15] See Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 50th Anniversary Edition (Chicago, Illinois: University of Chicago Press, 2012). Originally published in 1962.

[16] See Reeves, *Against Methodology in Science and Religion: Recent Debates on Rationality and Theology*.

[17] Terry Eagleton, *Literary Theory: An Introduction*, Anniversary edition (Malden, MA: Blackwell Publishing, 2008), 1.

[18] Eagleton, 2.

[19] Eagleton, 7. Italics original.

Terry Eagleton concludes that '[t]here is no "essence" of literature whatsoever'.[20] *Literature* is, therefore, a functional rather than an ontological term, in that it tells 'us about what we do, not about the fixed being of things'.[21] This could also be said about the terms *religion* and *science*, above. Eagleton concludes his use of the term *literature* thus: 'When I use the words "literary" and "literature" from here on in this book, … I place them under an invisible crossing-out mark, to indicate that these terms will not really do but that we have no better ones at the moment.'[22] Eagleton explains that *literature* is a highly valued kind of writing, but he also points out that values change according to context, whether that context be time, geographical location, culture, individual, or otherwise.[23] I will use the terms *literature*, *literary works*, and *literary language* throughout this thesis with the same acknowledgement of definitional difficulty as Eagleton. What is significant in bringing literature or literary works into the science-and-religion discourse (see definition below) is related to the form of literature, as well as its content. The case study chosen for this thesis can be considered a novel, fiction, science/speculative fiction, and a narrative or story. My use of the term *literature* in the context of science-and-religion is intended to distinguish particular texts/writings from scientific, theological, or philosophical prose or treatises.

Science-and-religion

[20] Eagleton, 8.
[21] Eagleton, 8.
[22] Eagleton, 9.
[23] Eagleton, 8–14.

The term *science-and-religion* refers to the intersection of religion and science. The hyphenated phrase is intended to offer clarity when distinguishing the phrase from references to *religion* and *science* on their own. The term *science-and-religion* can be used to refer to discourse, academic publications, or the academic discipline and field dedicated to studying the intersection of religion and science or more specific problems, concepts, or themes at the intersection of religion and science. For example, research within the science-and-religion field can include how science and religion relate methodologically,[24] as well as addressing more specific problems, such as the implications of contemporary neuroscience for belief.[25] The relationship between science and religion is complicated because, as noted above, religion and science have changed over time and neither are monolithic entities; furthermore, individuals think about science and religion in multifaceted ways. Therefore, *science-and-religion* is contingent upon factors such as culture, religion or science of interest, and the individual contemplating or working at the intersection.[26] Publications about science-and-religion go back to the nineteenth century, and the issues often discussed under *science-and-religion* have been recognised since antiquity and have been repeatedly subject to analysis.[27] The science-and-religion field might be said to have appeared in the 1960s with Ian Barbour's *Issues in Science*

[24] For example, see Reeves, *Against Methodology in Science and Religion: Recent Debates on Rationality and Theology*.

[25] For example, see Sarah Lane Ritchie, 'Does Contemporary Neuroscience Debunk Religious Belief?', in *Philosophy, Science and Religion for Everyone*, ed. Mark Harris and Duncan Pritchard (London: Routledge, 2018), 71–81.

[26] See Ryan T. Cragun, 'Science and Religion', in *International Encyclopedia of the Social and Behavioral Sciences*, ed. James D. Wright (Amsterdam: Elsevier, 2015).

[27] Brooke, 'Science and Religion, History of Field'.

and Religion.[28] The field is now sustained and expanded by journals and book series, associations, research centres and university chairs, and funding bodies. More will be said about method within science-and-religion, below.

Science-religion-and-literature

This thesis proposes a subfield within science-and-religion called *science-religion-and-literature*. *Science-religion-and-literature* is the intersection of science, religion, and literature, definitions of which have been discussed above. Chapter 2 will provide a map for the science-religion-and-literature field, based upon the methodological use of literature. The terms for the primary methodological distinction within the field, *science-and-religion-in-literature* and *literature-in-science-and-religion*, will be defined below. The science-religion-and-literature field has not been presented as *field* before; therefore, Chapter 2 creates a structure or map for those hoping to work within or progress the field.[29]

Science-and-religion-in-literature

Science-and-religion-in-literature is a proposed methodological category within the science-religion-and-literature field. It is a method that seeks to use literature as a medium through which to study concepts, problems, or themes within the science-and-religion field, as defined above. A science-and-religion-in-literature method often renders the use of literary works or theory a superfluous element of a

[28] Brooke, 752; Ian G. Barbour, *Issues in Science and Religion* (London: SCM Press Ltd, 1966).
[29] A visual diagram of this mapping is available in Appendix A.

science-and-religion study, using methods and addressing issues already present within the field, such that the conclusions of the study that are relevant to the science-and-religion field could have been obtained without the inclusion of literature. However, as will be shown in Chapter 10, there is still the benefit of science-and-religion engaging popular culture by using science-and-religion-in-literature methods. In the initial mapping of the science-religion-and-literature field, the distinction between science-and-religion-in-literature and literature-in-science-and-religion (defined below), is made when assessing the study; however, it is hoped that future scholars of science-religion-and-literature can choose to make such a methodological distinction at the outset of conducting a study.

Literature-in-science-and-religion

Literature-in-science-and-religion is a proposed methodological category within the science-religion-and-literature field that stands opposed to *science-and-religion-in-literature*. *Literature-in-science-and-religion* is a method that seeks to allow literature to be studied as literature prior to assessing its application to the science-and-religion field or discourse. This method would generally espouse the sentiment of literary critic Tzvetan Todorov when he claimed that 'literature must be understood in its specificity, as literature, before we seek to determine its relation with anything else'.[30] The use of literary works or theory, thus, becomes a different method within the science-and-religion field, akin to the use of philosophy, history,

[30] Tzvetan Todorov, 'Structural Analysis of Narrative', in *The Norton Anthology of Theory and Criticism*, ed. Vincent B. Leitch, trans. Arnold Weinstein, Second Edition (New York: W. W. Norton & Company, 2010), 2025.

or sociology to address the intersection of science and religion. The usefulness of *literature-in-science-and-religion* will be portrayed and explored throughout this thesis and explicitly assessed in Chapter 10, due to the argument of this thesis that literature contributes something new and is beneficial to the science-and-religion field.

Method in Science-and-Religion

Method within science-and-religion typically refers to how science and religion relate. According to Gregory Peterson, methodologies of science-and-religion generally seek to do two things: first, give an account of the nature of science and religion; second, account for how the truths in the respective fields can be related to one another.[31] According to Josh Reeves, the second is usually done by making theology scientific; in order to do so, one must determine what makes science unique—finding the essence of science. Reeves claims that this is generally done by appealing to scientific realism, method, or rationality.[32] Thus the concept of critical realism has dominated views on the relationship between religion and science. According to critical realism, both religion and science describe the world as it is; therefore, there is some correspondence between the statements of religion and science and the real world that such statements describe. Critical realism differs from

[31] Gregory R. Peterson, 'Science and Religion, Methodologies', in *Encyclopedia of Science and Religion*, ed. J. Wentzel van Huyssteen et al. (New York: Macmillan Reference, 2003), 756.

[32] Reeves, *Against Methodology in Science and Religion: Recent Debates on Rationality and Theology*, 1–6.

naïve realism in that it recognises the possibility of error, bias, and partiality in all descriptions.[33]

Relations between science and religion are often expressed through models. Although multiple scholars have suggested models, perhaps the most well-known is the fourfold typology of Ian Barbour: conflict, independence, dialogue, and integration.[34] The conflict model represents science and religion at war with each other and can be exemplified by creation science, scientific materialism, and new atheism. The independence model considers science and religion to be enquiries in separate domains or using differing languages. A prominent example of this model is Stephen Jay Gould's nonoverlapping magisteria model, in which the scope of science is considered to extend only to the empirical universe, whilst the extent of religion covers values and morality.[35] The dialogue model emphasises similarities between science and religion, such as similar questions and conceptual parallels. The integration model brings science and religion together in ways that often call for reformulation of ideas. Examples of integration include natural theology, theologies of nature, and process philosophy.

Much thinking on the relationship between science and religion draws on theology (especially that of Christianity), scientific theories, and philosophy (usually philosophies of science and religion). Josh Reeves has recently argued that debates

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[33] Peterson, 'Science and Religion, Methodologies', 757.

[34] Ian G. Barbour, *Religion and Science: Historical and Contemporary Issues: A Revised and Expanded Edition of* Religion in an Age of Science. (London: SCM Press Ltd, 1998), 77–105; Ian Barbour, 'Science and Religion, Models and Relations', in *Encyclopedia of Science and Religion*, ed. J. Wentzel van Huyssteen et al. (New York: Macmillan Reference, 2003), 760–66.

[35] Stephen Jay Gould, 'Nonoverlapping Magisteria', *Natural History* 106, no. 2 (1997): 16–22.

about method within science-and-religion are dependent upon scientific essentialism, which does not represent the most recent work in history and philosophy of science.[36] Reeves suggests that the science-and-religion field is now secure enough—40 years on—that it does not need to be threatened by recent thinking about science and religion that denies the essence of either (as discussed in the definitions section, above). Reeves outlines three ways forward for the science-and-religion field: scholars must become 'historians of the present', doing more descriptive work and becoming facilitators for competing groups in science-and-religion dialogue; scholars must focus on specific problems at the intersection of science and religion, requiring them to be embedded within research programmes; and scholars still interested in method at the intersection of science and religion must reform their use of the terms *science* and *religion*, acknowledging their non-essentialist nature.[37] I would suggest that some of these directions are already being taken by current scholars in the science-and-religion field. Descriptive work is being carried out by historians, anthropologists, and social scientists.[38] Many scholars also now work on specific problems within the *science-and-religion* field, and one of the most recent research projects within the field, coordinated by the University of Edinburgh, requires collaboration with a scientific laboratory for exposure to research activities in the empirical science in order to develop genuinely science-

[36] Reeves, *Against Methodology in Science and Religion: Recent Debates on Rationality and Theology*.

[37] Reeves, 129–36.

[38] For example, see Elaine Howard Ecklund, *Science vs Religion: What Do Scientists Really Believe?* (Oxford: Oxford University Press, 2010); Elaine Howard Ecklund and Christopher P. Scheitle, *Religion vs. Science: What Religious People Really Think* (Oxford: Oxford University Press, 2018); Harrison, *The Territories of Science and Religion*; John Hedley Brooke, *Science and Religion: Some Historical Perspectives*, Canto Classics edition (Cambridge: Cambridge University Press, 2014).

engaging theology: 'theological work which engages the content, objectives and methodologies of the contemporary natural science in all their diversity and disunity'.[39]

I consider the science-religion-and-literature subfield, especially when employing the method of literature-in-science-and-religion, to be aligned with the future of science-and-religion envisioned by Josh Reeves. In Chapter 10, I explain the benefits of incorporating the study of literary works and literary theory into one's study of science-and-religion (*science-religion-and-literature*): the possibility of studying the discourse as it exists within the public domain (rather than within academic circles alone), as well as using literature to disseminate nuances in the discourse; literature's ability to contextualise and embody the often theoretical or abstract concepts of science-and-religion, which can better enable ethical considerations; and acknowledging the subjectivity of humans, both as characters in literature and as humans who create and consume literature and who engage in science-and-religion exploration. Literature—both particular works and literary theory—has methodological parallels to the descriptive contributions of history, social science, psychology, and anthropology to the science-and-religion field, and it similarly makes use of philosophy in scholarship. In this sense, the present thesis suggests another method (in the form of contributions from another discipline) for

[39] The University of Edinburgh, 'God and the Book of Nature: Building a Science-Engaged Theology of Nature', The University of Edinburgh, 19 June 2019, https://www.ed.ac.uk/divinity/research/projects/god-and-the-book-of-nature; The University of Edinburgh, '£2.4 Million Grant to Explore Theologies of Nature', The University of Edinburgh, 25 June 2019, https://www.ed.ac.uk/divinity/news-events/latest-news/grant-for-god-and-nature?fbclid=IwAR1QuAjTzXm5Lh5LC44khF9sAVu6miANRo75Cpt69KRzIfeMX40FcLP6A8c.

science-and-religion, and one that is not solely interested in the relationship between essentialist understandings of religion and science.

Overview of Thesis

This thesis is composed of four parts. Part One, composed of two chapters, introduces the subfield of science-religion-and-literature. Following this current introductory chapter, Chapter 2 provides a review of exemplary studies within the nascent science-religion-and-literature field and explains the various approaches to incorporating literature found therein, thus mapping the field. The rest of the thesis will be an exploration of the literature-in-science-and-religion method.

Part Two, composed of three chapters, explores various uses of literary theory at the intersection of literature and society, religion, and science. Chapter 3 examines the intersection of literature and society, considering ethics, pedagogy, and philosophy. The purpose of this chapter is to provide a view of the wider implications of literary theory, beyond those for integrating literature with science and religion. Chapter 4 examines the intersection of literature and religion, with special consideration of biblical narrative, narrative theology, and spirituality and speculative fictions. Chapter 5 examines the intersection of literature and science, with special consideration of science as metaphor, posthumanism, the narrative brain, and evolutionary literary theory (also known as *evocriticism*). The use of literary theory, whether as critical theory or as the concepts of literary language or story, is one approach of the literature-in-science-and-religion method. Existing examples of

integrating literary theory, science, and religion will have been explored in Chapter 2.

The four chapters composing Part Three work together to present a literature-in-science-and-religion approach for which only one unpublished example was found to present in Chapter 2. This approach uses particular literary texts, and I propose to call it the *revelatory* approach. The term *revelatory* is not intended to imply that the particular text necessarily reveals something new to the science-and-religion field; rather, the term *revelatory* is intended to contrast with the term *explanatory*, which is a science-and-religion-in-literature approach proposed in Chapter 2. Whereas the *explanatory* approach is used to merely explain a science-and-religion concept, problem, or theme using the medium of literary works, the *revelatory* approach studies a literary work using literary methods and then considers the relation or benefit of such analysis to the science-and-religion field. It is thus a possibility that the *revelatory* approach reveals something to the science-and-religion field, but it is not a necessary outcome of the method.

Thus, Chapter 6 introduces the case study, the *MaddAddam* trilogy by Margaret Atwood. The rationale behind choosing the *MaddAddam* trilogy is that it is possible to apply to the trilogy the three other approaches using particular texts described in Chapter 2: authorial, thematic, and explanatory. Potential science-and-religion themes within the trilogy include human genetic engineering (transhumanism), eco-theology and green cults, apocalypse/eschatology (especially as a result of human science and technology), sciences versus humanities, drug-induced religious experiences (epistemology and ontology), and parapsychology.

These themes allow the text to be approached through either a thematic or explanatory method. Three examples of an explanatory approach are provided in Chapter 3, focusing on bioengineering and spirituality, eco-theology, and religious/spiritual experiences. An example of a thematic approach is not possible with the use of a single case study, as it requires studying a single theme across multiple texts by multiple authors. An argument could also be made for Atwood to be considered a science-and-religion thinker and, therefore, using an authorial approach, analysing her thought and assessing her contribution to the science-and-religion field as a thinker, rather than specifically as a literary author. She speaks of religion and of epistemological pursuits within science and religion in her book on science fiction.[40] Furthermore, although Atwood is not a scientist, she claims that, growing up in a family of scientists, she was motived to keep herself scientifically astute.[41] However, an in-depth authorial approach for the sake of comparison is beyond the scope of this thesis. Because the trilogy could have been used for authorial, thematic, and explanatory approaches, it serves as a valuable test-case for presenting a revelatory approach, which is done in Chapters 8 and 9. Chapter 8 presents a revelatory approach using the literary technique of theme,[42] and Chapter

[40] Margaret Atwood, *In Other Worlds: SF and the Human Imagination*, Paperback Edition (London: Virago Press, 2012), 38–65. See also Margaret Atwood, 'Of the Maddness of Mad Scientists: Jonathan Swift's Grand Academy', in *In Other Worlds: SF and the Human Imagination*, Paperback Edition (London: Virago Press, 2012), 202.

[41] Margaret Atwood, 'Writing *Oryx and Crake*', in *Moving Targets: Writing with Intent: 1982–2004* (Toronto: Anansi, 2004), 328–29.

[42] The term *theme*, especially in Chapters 6 through 8, should not be confused with the *thematic* approach. The term *theme* refers to either a science-and-religion theme or a literary theme. The *thematic* approach, as proposed in Chapter 2, requires studying a single science-and-religion theme through multiple literary texts, by multiple authors. The explanatory approach uses a literary work to simply show/explain/portray one or more science-and-religion themes. The revelatory approach may bring one or more literary themes to bear on the science-and-religion field. My use of the *MaddAddam* trilogy limits the study to a single story, although spread across three novels, by a

9 presents a revelatory approach using the literary technique of characterisation. Using the revelatory approach via a study of character within the *MaddAddam* trilogy, reveals a possible method for use within science-and-religion: science-and-religion-as-lived, which is analysed in Chapter 10.

Part Four, composed solely of Chapter 10, considers the impact of the literature-in-science-and-religion method (as opposed to science-and-religion-in-literature), including the revelatory approach and science-and-religion-as-lived, and articulates some of the benefits of studying literature in science-and-religion. The benefits include popular engagement with science-and-religion (and the study thereof), the contextualisation and embodiment of often theoretical and abstract concepts, and acknowledgment of the human subjective element in science-and-religion. Chapter 10 also concludes the thesis with a summary of the overall argument and suggests further research directions.

The thesis includes three appendices: a diagram of the science-religion-and-literature field, a list of Jimmy/Snowman's words, and gathered information about the God's Gardeners.

We will now explore the nascent field of science-religion-and-literature.

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single author; thus, limiting me to explanatory or revelatory approaches. It must be admitted that the thematic and explanatory approaches are differentiated solely by the number of texts used to explore a single science-and-religion theme. However, the distinction is well made when comparing Michael Ruse's *Darwinism as Religion* and Andy Walsh's *Faith Across the Multiverse*, as done in Chapter 2.

Chapter 2

Review of the Nascent Science-Religion-and-Literature Field

Introduction

There is a body of scholarship that explores the intersection of science, religion, and literature, but this body of scholarship has not yet been brought together for study as a field or within an institute for ongoing, systematic research. Therefore, I am proposing the existence of the *science-religion-and-literature* subfield by bringing together scholars and the research they have conducted and published at the intersection of science, religion, and literature and then mapping this proposed field. This chapter seeks to provide definition of and structure to this nascent field of research, based upon method. Because I am considering the science-religion-and-literature field as a subfield of the larger science-and-religion field, science-religion-and-literature is explored in relation to science-and-religion. One way of doing this is to assess the methodological use of the additional component of the subfield: literature. Therefore, if one were to systematise the science-religion-and-literature field as it now stands, one could do so according to how literature is incorporated into the study. This can be done through the use of particular texts or the use of literary theory. It is somewhat artificial to detach study of particular texts from literary theory, for particular texts are analysed using literary theory and literary theory is developed through the analysis of many particular texts. However, the distinction made here is one of emphasis and is deemed helpful for systematisation purposes. As will be portrayed below, the use of particular texts lends itself to

authorial, thematic, explanatory, and revelatory approaches. The use of literary theory lends itself to approaches of critical theory and the use of literary language or story. These methods and labels are of my own creation and definition based upon an attempt to understand the character and diversity of this body of scholarship. This chapter will explore these approaches, categorising them under science-and-religion-in-literature or literature-in-science-and-religion methods, using examples of each. [1]

The texts included herein are chosen for their intersecting treatment of science, religion, and literature, including a spectrum of treatments ranging from broad explorations of them as general fields of enquiry or methods of knowledge to specific explorations of, for example, a particular literary author interested in particular religious practices and scientific theories. The articles, chapters, and books explored herein reflect merely my own search for relevant studies, and I do not pretend to have surveyed every possible scholarly study. It is hoped that other studies will be able to fall within the structures articulated below; however, I remain open to the possibility that further studies—either discovered or composed—could alter these categories and structures. The mappings presented within this thesis, including the categories described below, are of my own making, in an attempt to explicate this nascent field of study. The significance of a literature-in-science-and-religion method will be more fully explored throughout this thesis and assessed in Chapter 10.

[1] See Appendix A for a visual diagram of this mapping.

Method: Science-and-Religion-in-Literature

Science-and-religion-in-literature methods use literature as a medium through which to study concepts, problems, or themes within the science-and-religion field. This method renders the use of literature superfluous to the science-and-religion conclusions of the study, as the study uses methods and addresses issues already present within the field. Because the study uses literature primarily as a medium for a study which could have been conducted without the incorporation of literature, it lends itself to the use of particular texts rather than to the use of literary theory.

Category: Particular texts

Research within this category is interested in the content, form, and authorship of particular texts. Although literary theory and criticism may be utilised in approaching a particular text, research of this kind is interested in particular texts rather than in the articulation or application of theories detached from particular texts. This category, under the science-and-religion-in-literature method, contains three approaches: authorial, thematic, and explanatory.

Authorial approach. Research using the authorial approach is interested in studying the entire corpus of a particular literary author. The author's literary work is often mined for its ideological content, which is then supplemented by his or her non-fiction writing, correspondence, and interviews. This ideological content is used to justify treatment of the literary author as a note-worthy science-and-religion thinker.

This is the case with June Deery's study of Aldous Huxley and Patrick Keane's study of Emily Dickinson.[2]

June Deery's *Aldous Huxley and the Mysticism of Science* brings together Deery's interest in literature and science, using Huxley and the influence of science and religion on his writing to explore dialogue between science and literary art. Due to Huxley's interest 'in making science and religion conformable to each other',[3] Deery's book not only explores the relation between literature and science, but also the relation between religion and science. Indeed, it is this focus on Huxley's contribution to science-and-religion discourse that allows us to classify Deery's method as authorial. Deery's 'aim is to pause at the intersection of religion and science and from this perspective trace Huxley's influence beyond his lifetime'.[4] Deery thus portrays Huxley as a rational and intellectual thinker within the individual discourses of science and religion, as well as a thinker who wishes to bridge them into a joined discourse. This authorial method seeks to position literary writers among the ranks of other key science-and-religion thinkers, such as Pierre Teilhard de Chardin,[5]

[2] I have also used this method with Emily Dickinson. See Jaime Wright, 'Emily Dickinson: A Poet at the Limits', *Theology in Scotland* 24, no. 1 (2017): 35–50. For a fuller exploration of the poet's science-and-religion import, see Jaime Wright, 'This World Is Not Conclusion: An Analysis of the Limits of Religious and Scientific Knowledge as Portrayed in Emily Dickinson's Poetry' (Master's Thesis, 2015).

[3] June Deery, *Aldous Huxley and the Mysticism of Science* (London: Macmillan Press, 1996), 3.

[4] Deery, 8.

[5] For example, see David Grumett, 'Teilhard de Chardin's Evolutionary Natural Theology', *Zygon* 42, no. 2 (2007): 519–34.

Arthur Eddington,[6] Ian Barbour,[7] Arthur Peacocke,[8] or John Polkinghorne.[9] In order to do this, Deery writes what would be considered a 'biography of a mind'[10]—Huxley's mind. This requires Deery to draw from Huxley's fiction, essays, and letters.

Deery's book is divided into two parts. The first part focuses on science and literature, and the second part focuses on bringing together literature, science, and religion. Chapter 1 establishes Huxley's interest in science and his understanding of the import of science for other disciplines. Deery claims that Huxley's work is particularly interesting here because he not only referred to science in his literary works, but also 'because he believed literature's reference to science was significant and a matter of some urgency'.[11] Chapter 2 examines Huxley's techniques for incorporating science into his works, and Chapter 3 asks whether the science referred to in Huxley's writings is real science and whether scientific accuracy is significant in a literary context. Here, Deery presents general parameters for exploring this, and she uses Huxley's work as a test case. Chapter 4 explores Huxley's understanding of the strengths and limits of the scientific method and its applicability in other cultural settings. The second part of the book begins with Chapter 5, in which Deery assesses mysticism's attraction for Huxley and the challenges to presenting mystical ideas

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[6] For example, see Matthew Stanley, *Practical Mystic: Religion, Science, and A. S. Eddington* (Chicago: University of Chicago Press, 2007).

[7] For example, see Nathan J. Hallanger, 'Ian G. Barbour', in *The Blackwell Companion to Science and Christianity*, ed. J. B. Stump and Alan G. Padgett (Chichester, West Sussex: Wiley-Blackwell, 2012), 600–610.

[8] For example, see Taede A. Smedes, 'Arthur Peacocke', in *The Blackwell Companion to Science and Christianity*, ed. J. B. Stump and Alan G. Padgett (Chichester, West Sussex: Wiley-Blackwell, 2012), 589–99.

[9] For example, see Christopher C. Knight, 'John Polkinghorne', in *The Blackwell Companion to Science and Christianity*, ed. J. B. Stump and Alan G. Padgett (Chichester, West Sussex: Wiley-Blackwell, 2012), 622–31.

[10] Deery, *Aldous Huxley and the Mysticism of Science*, 5.

[11] Deery, 2.

through writing. Chapter 6 explores Huxley's thoughts on mysticism as the appropriate religion for the scientifically literate, and Chapter 7 examines Huxley's relation to the New Age movement, which engages with what Deery calls 'misty-science'.[12]

Aldous Huxley and the Mysticism of Science is an authorial approach to science-religion-and-literature because of its treatment of Huxley. Deery portrays Huxley as a public, nonspecialist intellectual, capable of engaging in a wide variety of fields.[13] Deery's study of Huxley is a study of his ideas, rather than his literary technique, and she, therefore, draws upon more than his literary works. Deery also helpfully points out Huxley's thoughts on the influence of the literary medium for reaching popular audiences.[14] Huxley viewed the literary medium as a forum upon which other discourses could negotiate.[15] The ultimate argument Deery defends is that the ideas espoused by Huxley concerning the intersection of religion and science were ahead of his time, such that they would have seemed more radical in his own context than they seem today.

Another example of the authorial approach can be found in Patrick Keane's *Emily Dickinson's Approving God: Divine Design and the Problem of Suffering*. Keane chooses two topics from the nineteenth century New England poet's thought to consider: natural theology and theodicy. Both fit comfortably within the science-and-

[12] Deery, 147.
[13] Deery, 170.
[14] Deery, 118.
[15] Deery, 2–3.

religion field.[16] Keane discusses Dickinson's image of and relation to God in order to give an account of science-and-religion discourse with a specific focus on design and evolution. He states that 'the present book is essentially my own modest contribution to two much-explored subjects … The first has to do with Emily Dickinson's varying perspectives on God; the second, with the overarching question of the role played by God in a natural and human world marked by violence and pain: the great Problem of Suffering.'[17] Thus Keane's study uses the authorial approach.

Although Keane's study focuses primarily on Dickinson's 1884 poem, 'Apparently with no surprise' (1624)[18] and the science-and-religion concepts of divine design and suffering, it is included in this authorial section because Keane turns to Dickinson—especially to her 'specific theodicy'[19]—as if she were a key science-and-religion thinker, whose insight contributes to the wider science-and-religion field of the twenty-first century. Indeed, Keane includes an entire chapter on the

[16] Related key words and phrases (including *divine design*, *natural theology*, *divine action*, *theodicy*, *suffering*, and *evolution*) can all be found within the science-and-religion field. See Clayton, *The Oxford Handbook of Religion and Science*.

[17] Patrick J. Keane, *Emily Dickinson's Approving God: Divine Design and the Problem of Suffering* (Columbia, MI: University of Missouri Press, 2008), 1. There is much to be critiqued about Keane's understanding and presentation of Emily Dickinson when the contributions of other Dickinson scholars are taken into account. Other relevant contributions include Jane Eberwein, '"Is Immortality True?" Salvaging Faith in an Age of Upheavals', in *A Historical Guide to Emily Dickinson*, ed. Vivian Pollak (Oxford: Oxford University Press, 2004), 67–102; Jane Eberwein, 'Outgrowing Genesis? Dickinson, Darwin, and the Higher Criticism', in *Dickinson and Philosophy*, ed. Marianne Noble, Jed Deppmann, and Gary Lee Stonum (Cambridge: Cambridge University Press, 2013), 47–67; Robin Peel, *Emily Dickinson and the Hill of Science* (Teaneck, NJ: Fairleigh Dickinson University, 2010); Richard Brantley, *Experience and Faith: The Late-Romantic Imagination of Emily Dickinson* (New York: Palgrave Macmillan, 2004); Richard Brantley, *Emily Dickinson's Rich Conversation: Poetry, Philosophy, Science* (New York: Palgrave Macmillan, 2013).

[18] Emily Dickinson, *The Poems of Emily Dickinson: Including Variant Readings Critically Compared with All Known Manuscripts*, ed. Thomas Johnson (Cambridge, MA: Belknap Press, 1955), 1114. Number of poem according to Johnson's numbering system is placed parenthetically within the text. Note that R. W. Franklin provides a different numbering system. See Emily Dickinson, *The Poems of Emily Dickinson*, ed. R. W. Franklin (Cambridge, MA: Belknap Press, 1998).

[19] Keane, *Emily Dickinson's Approving God: Divine Design and the Problem of Suffering*, 25.

contemporary debate of God versus evolution. This chapter sets the scene with reference to recent best-selling authors, including Sam Harris, Richard Dawkins, Daniel Dennett, Christopher Hitchens, and J. K. Rowling. It is into this setting, with its interest in creationism versus evolution and debates about the existence of God, that Keane brings Emily Dickinson. Furthermore, despite Keane's interest in 'Apparently with no surprise', he also references other poems of Dickinson and her published letters.

The authorial approach is a study of the ideas of an author as a key science-and-religion thinker. Although particular texts are referred to, the author is the focus of study, more than the texts as literary works. Although the authorial approach is a method bringing science, religion, and literature together, it is an approach that enables conclusions about science-and-religion that could be made without reference to literature, after all the authorial approach is ultimately interested in the ideas of the author, rather than their literary works or technique. Within the science-and-religion field, the relation between science and mysticism that Deery highlights within Huxley's thought does not require journeys into *Brave New World* or *Island*.[20] Within the science-and-religion field, the exploration of divine design and theodicy that Keane highlights within Dickinson's thought does not require the in-depth study of 'Apparently with no surprise'.[21]

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[20] For example, see Pierre Teilhard de Chardin, *The Human Phenomenon*, trans. Sarah Appleton Weber, New ed. (Brighton: Sussex Academic, 2003); Fritjof Capra, *The Tao of Physics: An Exploration of the Parallels Between Modern Physics and Eastern Mysticism* (London: Wildwood House, 1975); Stanley, *Practical Mystic: Religion, Science, and A. S. Eddington*; Ilia Delio, *The Unbearable Wholeness of Being: God, Evolution and the Power of Love* (Maryknoll, NY: Orbis Books, 2013).

[21] For example, see Christopher Southgate, *The Groaning of Creation: God, Evolution, and the Problem of Evil* (London: Westminster John Knox Press, 2008); Eleonore Stump, *Wandering in*

Thematic approach. The thematic approach is interested in exploring themes, concepts, ideas, or problems drawn from the science-and-religion field within multiple literary works. Determining such themes can be done by surveying various science-and-religion volumes. For example, looking at *The Oxford Handbook of Religion and Science*, one finds reference to naturalism as a worldview, ecology and religion, divine action, panentheism, God and evolution, intelligent design, emergence and complexity, bioethics, and much more.[22] The thematic approach surveys a science-and-religion theme across multiple literary works by multiple authors. Two examples of a thematic approach will be explored below. Both are studies completed by scholars who associate with the science-and-religion field. Michael Burdett's study considers science fiction as it relates to transhumanism and eschatology. Michael Ruse's study is of the relationship between Christianity and Darwinian evolution as it is presented across many literary works.

Michael Burdett's *Eschatology and the Technological Future* is an example of Christian theology and technology (as a product of science) in dialogue. In particular, Burdett is interested in a dialogue between Christian eschatology and transhumanism. The book is divided into three parts. Part one explores the transhumanist imaginary and its forerunners. Part two explores two theological

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Darkness: Narrative and the Problem of Suffering (Oxford: Clarendon Press, 2010); Thomas Jay Oord, *The Uncontrolling Love of God: An Open and Relational Account of Providence* (Downers Grove, IL: Inter-Varsity Press, 2015); Bethany Sollereder, *God, Evolution, and Animal Suffering: Theodicy Without a Fall*, Routledge Science and Religion Series (New York: Routledge, 2018); Thomas Jay Oord, *God Can't: How to Believe in God and Love After Tragedy, Abuse, and Other Evils* (Grasmere, ID: SacraSage Press, 2019).

[22] Clayton, *The Oxford Handbook of Religion and Science*.

perspectives on technology and the future, attempting to portray views of Christian theologians that would present themselves at opposite ends of a spectrum concerning these themes. Part three brings philosophy into the conversation, highlights various philosophical and theological issues, and concludes by explicitly articulating the interactions of Christianity and transhumanism at the interface of technology and the future. Ultimately, Burdett claims that transhumanist narratives 'are a central preoccupation of our cultural imagination and in our reflections on the future'[23] and such imagining has religious reference; however, Christians and wider society should be concerned about the denial of limit and creatureliness within transhumanist thought and wary of the transhumanist understanding of the future being solely a product of the past and present, rather than as a 'radically unforeseen future'[24] coming from before us.

Burdett's study of transhumanism and eschatology is of interest to this thesis for his consideration of utopias and science fiction in seeking to understand the historical development of transhumanist thought. Burdett defends his study of science fiction thus:

> If, however, we want to have a more complete understanding of the current technological imagination, then we must examine the area of science fiction. The sheer pervasiveness and consumption of science fiction today is grounds for asserting that our technological imagination is influenced more by science fiction media than political or social engagements with technology and the future. This invariably leads us deeper into different mediums which include elements of fantasy literature and film rather than strict manifestos and planning tracts [that are to be found within utopic literature].[25]

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[23] Michael Burdett, *Eschatology and the Technological Future*, Routledge Studies in Religion (Oxford: Routledge, 2015), 236.

[24] Burdett, 242.

[25] Burdett, 47.

Notice that Burdett is not just claiming that transhumanists are influenced by science fiction, but that the technological imagination of all of society has been influenced by science fiction. Burdett focuses on science fiction's treatment of technology and the future, arguing that '[s]cience fiction really has become the central site where issues related to technology and future are worked out and argued over'.[26] Burdett then draws out three distinct themes in this treatment: the adventurous and transcendent, the dystopian and oppressive, and the questioning of the demarcation between humanity and technology.

This is a thematic approach, using particular literary texts; Burdett approaches science fiction with themes from science-and-religion in which he is already interested (the future and technology). However, as a result of this science-and-religion-in-literature method, Burdett mischaracterises the thematic breadth of science fiction. Burdett claims that '[t]he very core of science fiction is concerned with technology and the future'.[27] This claim is made based on a brief exploration of Darko Suvin's understanding of 'cognitive estrangement' and a fictional 'novum', alongside the following comment by the historian of science fiction, Adam Roberts, in his *History of Science Fiction*: 'The degree of differentiation (the strangeness of the novum, to use Suvin's term) varies from text to text, but more often than not involves instances of technological hardware that have become, to a degree, reified with use: the spaceship, the alien, the robot, the time-machine, and so on.'[28] This leads Burdett

[26] Burdett, 67.
[27] Burdett, 50.
[28] Adam Roberts, *The History of Science Fiction* (Basingstoke: Palgrave Macmillan, 2006), 2. For Burdett's quotation, see Burdett, *Eschatology and the Technological Future*, 50.

to make the following claim: 'The *novum* is almost always related to technology in science fiction. One might then say that the alternative reality, which is generally set in the future, is created through the *novum* of a technological environment.'[29] There are four things I would like to note concerning this comment. First, this comment, in its original context, falls within Roberts's attempt to portray the difficulty of defining science fiction. The larger context of the quote is as follows:

> There is amongst all these thinkers no single consensus as to what SF [science fiction] is, beyond agreement that it is a form of cultural discourse (primarily literary, but latterly increasingly cinematic, televisual, comic-book and gaming) that involves a world view differentiated in one way or another from the actual world in which is readers live. The degree of differentiation—the strangeness of the novum, to use Suvin's terminology—varies from text to text, but more often than not involves instances of technological hardware that have become, to a degree, reified with use: the spaceship, the alien, the robot, the time-machine and so on. The *nature* of differentiation remains debated.[30]

The final sentence, here, is telling. Although technology is 'more often than not' involved in the *degree* of differentiation, the *nature* of differentiation remains up for debate among scholars. This comment by Roberts does not seem to warrant Burdett's conclusion that the *very core* of science fiction is concerned with technology and the future. Second, in the preface to the first edition, the text used by Burdett, Roberts makes his own, differing claim about the core of science fiction: 'It still seems to me that stories of journeying through space form the core of the genre, although many critics would disagree with me.'[31] Third, as in the quote by

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[29] Burdett, *Eschatology and the Technological Future*, 50.

[30] Adam Roberts, *The History of Science Fiction*, 2nd ed. (Basingstoke: Palgrave Macmillan, 2016), 2. Italics original. This quote is the same in both editions of the text.

[31] Roberts, x.

Roberts just mentioned, Roberts is a historian making a historical claim about the development of science fiction, and he is clear that there are critics who will disagree with him. Fourth, also within the preface to the 2006 edition, Roberts claims that 'by the 20th century techno-fiction had, arguably, become the dominant form of SF'.[32] Although Burdett may see this as justification for his claim of technology at the core, for something to be a *dominant* form of science fiction is different from it being *core* to all forms of science fiction. These notes suggest that Burdett's claim of the core of science fiction being technology and the future is unjustified by his reference to Adam Roberts. Just as there are scholars and critics who will disagree with Roberts, there are scholars and critics of science fiction who would disagree with Burdett about the definition of science fiction. For example, Carl Malmgren, in his 1991 narratological approach to science fiction, *Worlds Apart*, suggests ten different subgenres of science fiction. Possible novums include: alien/monster, utopia/dystopia (social order), inventions/discoveries, catastrophe/alien landscapes, and natural law. Only the inventions/discoveries novums are part of what Malmgren considers gadget science fiction, which carry themes of self/technology. Other possible themes, depending on various novums, include: self/other, self/society, self/environment, and epistemological and ontological themes.[33] Although it is not my intention to pit Malmgren against all other science fiction theorists or historians, his typology of the science fiction genre, alongside the nuances in Roberts's comment used by Burdett,

[32] Roberts, x.

[33] Carl D. Malmgren, *Worlds Apart: Narratology of Science Fiction* (Bloomington, Indiana: Indiana University Press, 1991), 18.

reinforce Burdett's over-simplification, and, therefore, mischaracterisation of science fiction as a genre.

I do not think Burdett's mischaracterisation of the science fiction genre damages the thesis of *Eschatology and the Technological Future*. Burdett is correct that many science fiction texts and films do address technology and the future, and these texts and films have impacted our cultural imagination and the imagination of transhumanists. However, my point, here, is that Burdett has made science fiction submissive to his larger science-and-religion thematic study, which in effect renders the incorporation of the literary works superfluous. Burdett is interested in transhumanism and Christian eschatology, so he has searched multiple science fiction texts for these themes—the definition of the thematic approach within science-religion-and-literature.

Michael Ruse's *Darwinism as Religion: What Literature Tells Us About Evolution* gives much greater priority to literary works than does Burdett's study. Ruse is a philosopher and historian of science who has published extensively on Darwin and evolutionary biology. In the preface to this text on these topics, Ruse explains his goal for *Darwinism as Religion*: 'Now I want to do this one more time, from (what is for me) a totally new perspective: evolution including Darwin as seen through the lens of literature, fiction and poetry. Note that I am not using evolutionary thinking to analyze literature but seeing the influence of evolutionary thinking on literature and from this drawing conclusions.'[34] Ruse traces the

[34] Michael Ruse, *Darwinism as Religion: What Literature Tells Us About Evolution* (Oxford: Oxford University Press, 2017), x-xi.

interaction of literary writers with Darwinism through its phases as a pseudoscience, popular science, and professional science. Ruse's thesis (the 'conclusions' he draws from looking at literature) is that evolutionary thinking became a secular religion, in opposition to Christianity: 'In the second half of the nineteenth century and into the first part of the twentieth century Darwinian evolutionary thinking … became a belief system countering and substituting for the Christian religion: a new paradigm. … [A] system that can be elaborated and developed and accepted and believed in.'[35] In his concluding epilogue, Ruse writes the following:

> Making the crucial distinctions between pseudoscience and popular science, and popular science and professional science, it was at the popular level that Darwinism struck hardest and had the greatest effect. And seen in this light, there was something we can properly speak of not just as a revolution in science but as a religious revolution, whether you want to speak without qualification of Darwinism as a religion or more cautiously of Darwinism as offering a new, secular religious perspective.[36]

Ruse's study can be critiqued without reference to his methodological use of literature. For example, Ruse fails to provide a definition of religion or address definitional difficulties, instead offering implicit comparisons with Christianity; although Ruse acknowledges diversity of thought within Christianity, his examples of belief and his use of biblical texts tend to represent conservative evangelicalism alone; and Ruse implicitly maintains the science-and-religion conflict thesis in pitting Darwinism as a rival for Christianity. Although Ruse's thesis may be found uncompelling due to these critiques, his method remains an intriguing one for our purposes in exploring the use of literature in science-and-religion. Ruse makes the

[35] Ruse, 82.
[36] Ruse, 281.

following claims about the literature he explores: 'A novel can present ideas in a way more dramatic, engaging, and hence threatening than countless nonfictional volumes of political philosophy';[37] 'some of the great creative thinkers took up the idea [of natural selection] and worked with it—in ways that were in Darwin's theorizing but that were not developed fully by him or by others around him';[38] Henry James's *Portrait of a Lady* sets out to show 'that the foreground can be a great deal more complex than Darwin suggests';[39] and 'the creative writers started to weigh in'.[40] In these comments, which Ruse does not explore much further, we see that literary writers can be more engaging of the population than scientists or philosophers writing nonfiction prose; they can offer different views that are true to a given scientific theory, yet underdeveloped by scientific thinkers; they highlight the complexity of the theories and/or their implications; and they offer another perspective. This final point, about offering another perspective or engaging the discussion from another field aligns with the significance of Ruse's interest in the popular level of engagement with Darwin and Darwinism as religion. Although Ruse does not state this, his 'Darwinism as religion' thesis is dependent upon the discussion surrounding Darwinism and Christianity in the public realm (what he calls the 'popular level' in a historical sense). These are hints of a revelatory approach (explored below), but Ruse does not further pursue or explore them.

[37] Ruse, 7.
[38] Ruse, 65.
[39] Ruse, 180.
[40] Ruse, 253.

Although I would not advocate Ruse's Darwinism-as-religion thesis due to the critiques levelled against it above, I would use his data to argue that literature, as a methodological tool, allows us to observe how ideas are disseminated, developed, and propagated in the public realm or at a popular level. Literature can be more engaging to a lay audience. Literature brings scientific and religious ideas to the public in different forms and can acknowledge the complexity of incorporating such ideas into one's day-to-day life. Creative writers have a platform in which to weigh in on these topics. Studying literature not only accesses these popular level ideas, but they also reveal the power of the public sphere in shaping people's thoughts on scientific or religious ideas (as Burdett stated above, concerning science fiction and technology)—especially when individuals are distant from these disciplines in their professional state as engaged with by experts. However, in his study, Ruse does not move beyond the science-and-religion theme with which he is interested in order to pursue this line of thinking about the benefits of literature for the science-and-religion field (which we will pick up in Chapter 10). This study comes close to a revelatory approach (which will be introduced below and explored and assessed in Chapters 8 through 10); however, because Ruse's study is dictated by his interest in Darwinism as a secular religion in opposition to Christianity, his study remains for us an example of a thematic approach to science-religion-and-literature.[41]

[41] To see an example of this science-and-religion theme explored elsewhere, see Mary Midgley, *Evolution as a Religion: Strange Hopes and Stranger Fears* (London: Methuen, 1985).

Explanatory approach. The explanatory approach is, in my opinion, simultaneously the most exciting and disappointing one for science-religion-and-literature. These studies bring together science-and-religion and particular literary texts, often of the science fiction genre. However, this research often fails to use their references to particular texts in order to contribute to the science-and-religion field. Each of our examples, here, succeed in only emphasising the relationship between two out of the three disciplines. James McGrath's book is about the relationship between science fiction and religion, the connection with science coming from the science implied in the fictional texts, and the science-and-religion connection coming from the paradigm McGrath employs for his text. Andy Walsh's book is about the relationship between science and religion, using science fiction to explain concepts and appeal to his target audience. Therefore, these studies exemplify those within the science-religion-and-literature field that use literature to explain theories, problems, or concepts of the science-and-religion field.

Pursuing his dual interests in religion and science fiction, New Testament scholar James McGrath has produced his own book-length discussion of their interface. Published as part of the Cascade Companion series, it is intended to introduce non-specialist readers to topics normally confined to the academy. McGrath expresses his hope to the reader that *Theology and Science Fiction* 'will not only lead to interesting engagement with existing theology and science fiction, but also to the crafting of even more imaginative stories and theologies'.[42] To guide his

[42] James F. McGrath, *Theology and Science Fiction*, Cascade Companions Series (Eugene, Oregon: Cascade Books, 2016), 93–94.

discussion, McGrath turns to Ian Barbour's foundational model for the possible relationships between religion and science: conflict, independence, dialogue, and integration.[43] Although uninterested in discussing 'no relation' (independence) between science fiction and theology, McGrath loosely utilises the other three modes of Barbour's model. McGrath begins with a comparison of canon formation; an issue of importance to theology and of much debate within various science fiction fandoms (perhaps an example of dialogue). Next, he approaches the potential conflicting relationships between science fiction and theology. McGrath spends two chapters, here: first, approaching from the perspective of science fiction; second, approaching from the perspective of theology. McGrath explores the intersection of theology and science fiction with philosophy and ethics. Then he explicitly outlines what dialogue and integration between science fiction and theology entail. McGrath concludes his book with three short science fiction stories of his own. McGrath's book is included here because of his use of Barbour's model of engagement between science and religion; however, McGrath is interested in science fiction and religion. Therefore, because of his use of Barbour's model, one could interpret science fiction as merely explanatory tools for the scientific theories and technologies embedded within them.

Faith Across the Multiverse is Andy Walsh's attempt to bring the Christian Bible into dialogue with modern science. Unlike most attempts to bring these disciplines together, Walsh also brings science fiction into the discussion. Walsh believes that 'science has the possibility to offer a rich world of metaphors for those

[43] See Barbour, 'Science and Religion, Models and Relations'.

of us who want to know God better'.[44] Indeed, it is at the level of metaphor that science, the Bible, and science fiction intersect for Walsh, who also claims that nerdiness is shared by all three because they each explore 'the world, not just as it is, but how it might be, could be, perhaps should be'.[45] Through examining similarities between the Bible and modern science, Walsh hopes to show that they share an author, who is the God described in the Bible. Walsh uses science fiction throughout the book to help readers understand the ideas of modern science. Walsh's ultimate desire is to introduce to the reader the God that he has come to know and the science that helps him think more clearly about that God.

Because Walsh is interested in metaphors, he is aware of the role language plays in his approach to reading the Bible alongside modern science. Walsh appropriately identifies the key methodological role of translation, both in reading the Bible alongside science and in drawing concepts from different subfields of science. Walsh divides his book into four parts, corresponding with four scientific languages: mathematics, physics, biology, and computer science. In these parts he considers faith alongside concepts of logic, the nature of Jesus alongside the nature of light as both particle and wave, the body of Christ alongside the emergence of consciousness, the Christian story alongside evolutionary theory, and much more.

Walsh claims two purposes in this book: first, to show that the Bible and the universe, as described by science, share an author (who is the God described in the Bible); and, second, to make Christianity more palatable to scientific nerds (and,

[44] Andy Walsh, *Faith Across the Multiverse: Parables from Modern Science* (Peabody, MA: Hendrickson Publishers, 2018), 11.

[45] Walsh, 12.

perhaps, science more palatable to Christians). I do not think Walsh achieves his first goal, primarily because I think he does not account enough for the human role in composing and interpreting the Bible and in conducting the scientific enterprise. The Bible and scientific descriptions could still share metaphors even if God did not exist, because the power of metaphors lies within human language and understanding, which inform biblical hermeneutics and scientific investigation/description. However, I think the great success of *Faith Across the Multiverse* lies in Walsh's second goal. The book proves itself to be an apology for both the Bible and science. The apologetic value lies in the message that our modern scientific understandings can sit comfortably alongside biblical texts; science and the Bible do not have to be mutually exclusive. In this, *Faith Across the Multiverse* represents a work of theology, articulating Christianity for a society informed by modern science.

Although the inclusion of science fiction likely makes the book appealing and a pleasure to read, Walsh could have written the same book about reading modern science and the Bible alongside each other without any reference to science fiction. Science fiction seems merely a way to gain the reader's interest or help the reader understand a scientific concept. Far more than McGrath's text, Walsh's study is a clear example of an explanatory use of literary texts within the science-and-religion field. Furthermore, the science fiction is often used to explain only scientific concepts, problems, or theories; rather than concepts, problems, or themes within science-and-religion. Walsh has written a clear and well-argued book on the intersection of science and the Christian bible; the incorporation of literature merely made the book more enjoyable to read, rather than enhancing the book's argument.

Method: Literature-in-Science-and-Religion

Literature-in-science-and-religion is a method within science-religion-and-literature that stands opposed to the science-and-religion-in-literature method described above. Literature-in-science-and-religion seeks to allow literature—either as particular literary works or as literary theory—to be studied or treated as literature prior to assessing its application to science-and-religion discourse. The use of literature, therefore, becomes a different method within the science-and-religion field, potentially offering something new to the field.

Category: Literary Theory

The term *literary theory*, as used herein, is meant to be read as *theories about literature*. I use the term to distinguish such approaches in this category from the study of particular texts, rather than implying that we must delve into the definitions of *literature* and *theory* (although the definition of *literature* was briefly explored in Chapter 1). Furthermore, it must be acknowledged that the study of any particular text involves the use of literary theory or literary criticism. Therefore, research found within this broad category is that which does *not* concern itself with studies of or excurses into particular literary works. I have identified two approaches within this category: the use of critical theory and the use of literary language or story.

Critical theory approach. The term *critical theory* was coined in 1937 by Max Horkheimer to describe the work of the Frankfurt School, the collective name for the

group of scholars and the body of work associated directly and indirectly with the Institute for Social Research (Institut für Sozialforschung), an independent research centre affiliated with Frankfurt University.[46] Critical theory is a reflexive, interdisciplinary enterprise that holds that theory is historical, subjective, and a part of society.[47] In general, critical theory explores the intersections of economic development, psychic life, and culture.[48] However, the term has also been used to loosely refer to any form of theorising in the humanities and social science, even if not consistent with the political outlook of the original Frankfurt School.[49] Because assessment of *critical theory* is not the aim of this thesis, theorists will only be identified herein as critical theorists if they are so identified by other scholars or self-identify as such. As for my own use of the term *critical theory*, I will similarly not apply the term unless it is justified by others' scholarly use. Literature becomes relevant to critical theory in that it is an element of, a part of, and a product of culture. Three examples of the use of critical theory at the intersection of science and religion will be explored herein: Nicholas Lash writes about ideology in an article that was included within a science-and-religion volume edited by Arthur Peacocke, Ken Stone brings literary and cultural studies to bear on reading the Hebrew Bible alongside animal studies, and Stephen Prickett argues for approaching religion and science as narratives.

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[46] Ian Buchanan, ed., 'Frankfurt School', in *A Dictionary of Critical Theory* (Oxford: Oxford University Press, 2010).

[47] Ian Buchanan, ed., 'Critical Theory', in *A Dictionary of Critical Theory* (Oxford: Oxford University Press, 2010). See also Michael Payne, 'Critical Theory', in *A Dictionary of Cultural and Critical Theory*, ed. Michael Payne and Jessica Rae Barbera (Chichester: Wiley-Blackwell, 2010), 153–54.

[48] Buchanan, 'Critical Theory'.

[49] Buchanan.

Nicholas Lash's 'Theory, Theology and Ideology' represents a science-religion-and-literature, critical theory approach. The relevant science of this piece is that of sociology. The majority of the article explores Marx's concept of ideology, in the hopes of addressing Lash's paraphrased question of Karl Mannheim: 'How is it possible for man [*sic*] to continue to think and live, to believe, hope and pray, when problems of ideology are being radically raised and thought through in all their implications?'.[50] In his conclusion, Lash opens up the implications of *ideology*, especially when contrasted with *science*, for Christian theologians whose discourse refers to Christian religious practices that are narrative, self-involving, and autobiographical.[51] Lash claims in this article that truth is told in more than the theoretical discourses, such as science. Truth can also be told through the Christian story; however, it is the job of Christian theology to 'elucidate the truth-conditions of the tale and thus critically to assess the truthfulness of its telling'.[52] This article by Lash provides an example of bringing critical theory, with its reference to the possibility of narrative and autobiographical truth, into the science-and-religion discourse.

Ken Stone's *Reading the Hebrew Bible with Animal Studies* is included in this section on critical theory approach due to the theorists whose ideas populate his study. Stone's method is aligned with an 'animal turn' in the humanities and social sciences. Animal studies is a heterogeneous body of writing about animals,

[50] Nicholas Lash, 'Theory, Theology and Ideology', in *The Sciences and Theology in the Twentieth Century*, ed. A. R. Peacocke (Stocksfield: Oriel Press, 1981), 209.

[51] Lash, 223.

[52] Lash, 223.

encompassing the zoological and ethological fields associated with animal biology, behaviour, and cognition; literary and culture studies; philosophy and philosophical ethics; history; sociology; and anthropology. Stone acknowledges the potential difficulties involved in the methodological pluralism of animal studies when attempting to bring it to bear on the field of biblical studies; however, he insists on using the phrase *animal studies*, acknowledging that he uses it in his book 'to refer to diverse styles of reading and analysis rather than a single methodological approach'.[53] Stone's method leads him to draw on thinkers such as Donna Haraway, Matthew Calarco, Jacques Derrida, Emmanuel Levinas, Johnathan Klawans, Adrian Franklin, Barbara King, Frans de Waal, Jane Goodall, Holmes Rolston III, Thom van Dooren, Aaron Gross, and others—drawing together biblical, literary, and animal studies.

Stone's monograph aims to suggest that contemporary animal studies can prove useful to Hebrew Bible readers who wish to reconsider the significance of animals to and within the text. This is achieved by re-examining sections of the Bible in dialogue with the resources or questions of animal studies. Stone outlines three emphases within contemporary animal studies to which he returns throughout the book: Donna Haraway's concept of 'companion species', destabilising the human/animal binary, and associations between species difference and differences among humans. Although Stone does not attempt to correlate biblical literature with modern science in any literalising sense, he helpfully asks whether primatological

[53] Ken Stone, *Reading the Hebrew Bible with Animal Studies* (Stanford, CA: Stanford University Press, 2018), 14.

studies of morality, animal meaning, and spirituality, along with writings by religious studies scholars who take seriously animals and animal religion, can be useful in 'reshaping the hermeneutical imagination that readers of the Bible bring to biblical texts'.[54] Considering reading the Hebrew Bible in an age of extinction, Stone argues that story, place, and species survival are intertwined, such that we must learn to tell different and better stories involving multiple species in particular places so as to foster a more habitable multispecies world. This means retelling the Bible's story in ways that emphasise the interdependence of our lives with those of other animals, rather than reaffirming human exceptionalism.

Although it could be argued that Stone's study is using a particular text, the Hebrew Bible, the type of literature whose use is being advocated in this thesis is beyond those considered scripture by traditional world religions. Studies at the intersection of science and scripture, especially that of Christianity, are not new to the science-and-religion field.[55] Stone's study is included in this section due to his use of critical theory. Stone's focused dialogue between the Hebrew Bible and animal

[54] Stone, 155.

[55] For example, see Claus Westermann, *Creation*, trans. John J. Scullion (London: SPCK, 1974); Denis R. Alexander, *Creation or Evolution: Do We Have to Choose?* (Grand Rapids, MI: Monarch Books, 2008); David G. Horrell, *The Bible and the Environment: Towards a Critical Ecological Biblical Theology* (London: Equinox, 2010); George Murphy, 'Cosmology and Christology', *Science and Christian Belief* 6, no. 2 (1994): 101–11; Barbara J. Sivertsen, *The Parting of the Sea: How Volcanoes, Earthquakes, and Plagues Shaped the Story of Exodus* (Princeton, NJ: Princeton University Press, 2009); Colin J. Humphreys, *The Miracles of Exodus: A Scientist's Discovery of the Extraordinary Natural Causes of the Biblical Stories* (New York: HarperCollins Publishers, 2003); Eric Eve, *The Healer from Nazareth: Jesus' Miracles in Historical Context* (London: SPCK, 2009); Stephen T. Davis, '"Seeing" the Risen Jesus', in *The Resurrection: An International Symposium on the Resurrection of Jesus*, ed. Stephen T. Davis, Daniel Kendall, and Gerald O'Collins (Oxford: Oxford University Press, 1997), 126–47; John C. Whitcomb and Henry M. Morris, *The Genesis Flood: The Biblical Record and Its Scientific Implications*, 50th Anniversary edition (Phillipsburg, NJ: P&R Publishing, 2011); Edith Kristan-Tollmann and Alexander Tollmann, 'The Youngest Big Impact on Earth Deduced from Geological and Historical Evidence', *Terra Nova* 6, no. 2 (1994): 209–17; Mark Harris, *The Nature of Creation: Examining the Bible and Science* (Durham: Acumen, 2013).

studies brings literary and critical theory into the interdisciplinary conversation, as well, thus providing a book well worth reading, not only for its fresh ideas, but also for its methodological insight for engaging science-and-religion within society.

Another example of a critical theory approach is Stephen Prickett's *Narrative, Religion and Science*. Foundational science-and-religion scholar Ian Barbour claimed in his 1998 revised text, *Religion and Science: Historical and Contemporary Issues*, that the role of story and ritual in religion are without parallel in science, which is dependent upon theories and models;[56] however, this ignores the narrative turn in the fields of religion and science noted by literary scholar Stephen Prickett, who argues in *Narrative, Religion and Science* that, because of their dependence upon story, both fields should be subject to the analyses of critical theory.[57] Prickett's categorisation of the discourses of science and religion as narratives liable to critical theory is not the conclusion of his text; rather, it is his means of critiquing fundamentalism and 'irony' in the two discourses. Irony, for Prickett, 'depends at some level on a hidden reality, whose presence must always be assumed, even if it

[56] Barbour, *Religion and Science: Historical and Contemporary Issues: A Revised and Expanded Edition of* Religion in an Age of Science, 136.

[57] Prickett introduces the narrative nature of science thus: 'Physics, declared Niels Bohr, father of the "Copenhagen" interpretation of quantum theory in the 1920s and 1930s, tells us not what is, but what we can *say* to each other concerning the world. There is no "scientific method" writes Jean-François Lyotard, a scientist is before anything else a person "who tells stories". This description of the scientist is echoed by John Gribbin, the physics writer, who recently commented at the end of a lengthy discussion of quantum theory, "I do not claim that it is anything more than just a fiction; all scientific models are simply Kiplingesque "just-so" stories that give us a feeling that we understand what is going on." Startling as this might seem to the non-scientist, within their profession such views from Bohr or Gibbin are no longer controversial. Gribbin seems in fact, consciously or unconsciously, to be echoing the American biologist Stephen Jay Gould, who had used precisely the same phrase, "just-so stories"—but without mentioning Kipling—in an essay in 1991. Science, Gould claimed, was best thought of as a series of interpretative or "adaptive stories" to explain certain phenomena.' See Stephen Prickett, *Narrative, Religion and Science: Fundamentalism versus Irony, 1700–1999* (Cambridge: Cambridge University Press, 2002), 2. Italics original.

cannot always be necessarily disclosed'.[58] Such a sense of irony challenges our concepts of 'proofs': '[H]owever full and detailed our seeing or describing the world may be, it is never complete, never exhaustive, and above all, never entirely predictable. There will always be something to be added, more to be said, a different way of interpreting it by those who come after.'[59] This is the case with both religious and scientific statements about reality. As Prickett concludes, 'The point is, rather, that if we are to regard science [and religion] as primarily a process of telling stories about the world, we should expect such stories, like other narratives, to be multi-valent, ambiguous—and ironic.'[60] Prickett's book is, therefore, an example of incorporating literature into a science-and-religion study through the use of critical theory.

Literary language or story approach. This approach examines the form of literature without paying much attention to the content found within that form. Three examples are given for this approach. Celia Deane-Drummond, a science-and-religion scholar, has written on the use of drama; examined herein is a chapter in which she compares the narrative and dramatic rhetorical forms as they relate to climate change and ethics. Rowan Williams has used language, especially that found within poetry and fiction, as an approach to natural theology. John Haught uses the structure of story to understand our universe, an understanding that takes both science and religion into account.

[58] Prickett, 204.
[59] Prickett, 114.
[60] Prickett, 252.

Celia Deane-Drummond has brought Hans Urs von Balthasar's work on theo-drama to bear on eco-theological discourse. In a chapter entitled 'Beyond Humanity's End: An Exploration of a Dramatic versus Narrative Rhetoric and its Ethical Implication', Deane-Drummond uses climate change as a case study for the implications of using narrative or dramatic discourse to articulate a particular issue, concerning which ethical and political action is demanded. Although Deane-Drummond has used theo-drama to address other issues within eco-theology, such as deep incarnation,[61] this particular chapter is helpful in that, within it, she outlines the various uses of narrative and theology, as well as the different implications for narrative and dramatic rhetoric as these pertain to the scientific concept of climate change.

In her chapter, Deane-Drummond explains that there are various possible meanings of *narrative* when referring to its particular function in religious terms. *Narrative* can mean: (1) the nature of religious experience, such that 'religion is about the way people tell particular stories, or such stories give structure to the world and try to make sense of it'—this essentially refers to the form in which a religious encounter occurs; (2) 'the bearer of the sacred itself, such as in narratives embedded in sacred scripture'; (3) the life story or account of experiences of a particular individual or group of people; (4) 'the manner in which the biblical text is set forth'; and (5) a hermeneutic tool, such as when theological issues are portrayed through

[61] See Celia Deane-Drummond, 'Who on Earth Is Jesus Christ? Plumbing the Depths of Deep Incarnation', in *Christian Faith and the Earth: Current Paths and Emerging Horizons in Ecotheology*, ed. Ernst Conradie et al. (London: Bloomsbury, 2014), 31–50.

narrative.[62] It is this last use of the term that interests Deane-Drummond within her chapter. Ultimately, she argues that 'drama is significant in that it allows a greater attention to the personal engagement with the issue [of climate change] compared with its portrayal in narrative terms'.[63]

Deane-Drummond is interested in critiquing *epic* or *grand* narratives, rather than the general narrative form, itself. As the theologian points out, 'It is important to note that drama does not eclipse all narrative; rather, by giving attention to the lyrical it ensures that it does not slip into epic mode'.[64] Deane-Drummond's major critique is that when climate change is articulated using a grand narrative form, it brings about an unhelpful sense of determinism.[65] There are two main types of narrative accounts when it comes to climate change. The first is a Promethean view that assumes the success of human progress such that we can use technology to dominate the natural world. This narrative has the potential to lead to revolutionary political action in the form of adaptation; however, it still expresses a general resignation to the inevitability of climate change. The second narrative is one that overturns anthropocentrism and dethrones humanity, with the possible addition of the message that humans are a liability or negative influence upon the earth, such that the earth will strike back against the threat of humanity. This narrative, according to Deane-Drummond, leads to either a resigned lack of action or a

[62] Celia Deane-Drummond, 'Beyond Humanity's End: An Exploration of a Dramatic versus Narrative Rhetoric and Its Ethical Implications', in *Future Ethics: Climate Change and Apocalyptic Imagination*, ed. Stefan Skrimshire (London: Continuum, 2010), 243.

[63] Deane-Drummond, 243.

[64] Deane-Drummond, 248.

[65] Deane-Drummond, 246.

defensive adaptation. Regardless, the same general resignation in the face of climate change results from this narrative. However, Deane-Drummond claims that dramatic rhetoric leads to different ethical and political responses.

Drama, in contrast to epic narrative, does the following: (1) 'displays human actions and temporal events in specific contexts'; (2) reflects the indeterminacy of human life, the unforeseeable interactions of circumstances, and the ambiguities of existence; (3) better portrays events through dynamic staging of particulars in a particular way; (4) 'has an irreducibly *social* dimension, including the audience as much as those taking part in the play'; (5) includes the idea of anticipation as ongoing involvement in the work of interpretation; and (6) takes up narrative elements, yet presents multiple voices with equal claim to truth and authority in the absence of an omniscient narrator.[66] Thus, the political implications of using drama, as opposed to epic narrative, when articulating climate change include a stress upon the importance of individual human agency, collective and communitarian action that is inclusive of the non-human realm, and empowering action in the present realm.[67]

Although I do not intend to take a side in Deane-Drummond's narrative versus drama dichotomy, I do wish to declare its belonging within the nascent science-religion-and-literature field, as I am seeking to define it. Unlike scholars who have appealed to particular authors or works, Deane-Drummond, similar to literary and critical theorists, is considering the forms of narrative and drama as it relates to science-and-religion discourses.

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[66] Deane-Drummond, 248–49. Italics original.
[67] Deane-Drummond, 254–56.

Another attempt to bring literature—in the form of speech and language—into the science-and-religion field is that of Rowan Williams's *The Edge of Words: God and the Habits of Language.* This book has its origin in the 2013 Gifford Lectures, a lecture series dedicated to the study of natural theology. Williams pursues an answer to the following question: 'Does the way we talk as human beings tell us anything about God?'[68] Williams views human language as an aspect of the natural world, upon which one can build a natural theology.[69] Natural theology, according to Williams, is 'an attempt to reach conclusions about the existence and character of God by arguing from features of the world',[70] and it 'is thus an exercise in locating and mapping difficulty'.[71] Williams connects his titular topic with theology thus:

> The recognition that we may be telling the truth about our world through unusual habits of speech—metaphors, gestures, fictions, silences—is a recognition of the diversity of ways in which information comes to us and is absorbed and embodied afresh. But to see this is also to see how we might formulate the idea of an abundant or 'excessive' reality engulfing our mental activities so that our language does strange things under its pressure; and this is where connections with theology most strongly suggest themselves.[72]

Noting the complexity of truthful representation through human speech—including such speech acts as narrative, poetics, irony, and silence—Williams takes 'seriously the various open-ended aspects of our speech' as a means of 'rethinking how we come to refer to the unconditioned activity which … surrounds all that we are and all that we say'. [73] This excessive reality and unconditioned activity *is* the god pursued

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[68] Rowan Williams, *The Edge of Words: God and the Habits of Language* (London: Bloomsbury, 2014), ix.

[69] Williams, 124.

[70] Williams, 17.

[71] Williams, 181.

[72] Williams, xii.

[73] Williams, 179.

via natural theologies. Building up to his chapter on silence—at the furthest edge of words—Williams claims that the difficulties and eccentricities of language converge with the 'Christian model of an *embodied* sacred whose sacredness is inseparable from its silence or marginality',[74] such that 'the silent/silenced God spoken of in connection with the image of crucified dispossession can come to be seen as actively self-revealing'.[75] Ultimately, Williams claims that theology will regard what humans often consider marginal sorts of speech as central, for theology 'will have a framework in which what is present and unsayable is understood as pervasive and generative'.[76] Natural theology is connected with the science-and-religion field, although it far pre-dates science-and-religion becoming a self-aware disciplinary field of enquiry. Williams's attention to language, especially as it is found in poetry and fiction, represents a science-religion-and-literature method using literary theory in the form of attention to literary language.

John Haught's 2017 book, *The New Cosmic Story: Inside Our Awakening Universe*, is an example of utilising humanity's propensity to comprehend and communicate via story.[77] Haught is an American theologian who has lectured on and is widely published within the science-and-religion field. The new cosmic story to which Haught refers is that told to us by recent discoveries in science: 'Over the past

[74] Williams, 179. Italics original.

[75] Williams, 181.

[76] Williams, 181.

[77] For further explorations of the humanity's use of story, see Jaime Wright, 'In the Beginning: The Role of Myth in Relating Religion, Brain Science, and Mental Well-Being', *Zygon: Journal of Religion and Science* 53, no. 2 (2018): 375–91; Jonathan Gottschall, *The Storytelling Animal: How Stories Make Us Human* (New York: Mariner Books, 2013).

two centuries scientists have found out that the universe is a story still being told.'[78] The new cosmic story is related to efforts to convey 'Big History,' which 'seeks, as best it can, to tell the story of *everything* that has taken place in the past, including what was going on in the universe before Homo sapiens arrived'.[79] However, Haught argues that such narratives ignore what he calls 'the inside story of the universe'[80]: 'The universe, after all, includes *subjects*, hidden centers of experience whose significance cannot be measured by science or captured by purely historical reporting. What is needed … is a narrative that tells the whole cosmic story, inside as well as outside.'[81] The inside story involves three cosmic breakthroughs: life, mind, and religion. Haught is, unsurprisingly, primarily interested in exploring the latest development: religion.

Haught claims two purposes for his book: first, to understand religion (defined as the search for a transcendent unifying principle of meaning, goodness, beauty, and truth) as an extension of the cosmic story; and second, 'to understand the new cosmic story from the point of view of the religious quest for an indestructible rightness.'[82] In order to fulfil these two purposes (as well as to explain just what is a quest for indestructible rightness), Haught investigates twelve common religious themes, which can be found across many religious traditions, as to their significance to our emerging cosmos. The twelve themes are dawning, awakening,

[78] John F. Haught, *The New Cosmic Story: Inside Our Awakening Universe* (New Haven, CT: Yale University Press, 2017), 1.

[79] Haught, 1. Italics original.

[80] Haught, 1.

[81] Haught, 2. Italics original.

[82] Haught, 43.

transformation, interiority, indestructibility, transcendence, symbolism, obligation, purpose, wrongness, happiness, and prayerfulness.[83] In investigating these themes, Haught employs three different ways of reading the new cosmic story: archaeonomic, which 'assumes that everything that happens in the history of nature is predetermined by inviolable physical laws established from the beginning'[84]; analogical, which 'looks upon the perishable things in nature as, at best, imperfect representations or analogies of eternal and invisible originals existing beyond the empirically available world'[85]; and anticipatory, which 'looks patiently and expectantly ahead for a possible meaning to it all,' 'is especially grateful for scientific discoveries that invite us to understand the universe as an unfinished story', and 'wagers that something significant is working itself out in the universe now as in the past'.[86]

Although Haught briefly references literary works by authors such as Ian McEwan (*Saturday*), Albert Camus (*The Plague*), and Fyodor Dostoevsky (*The Brothers Karamazov* and *Crime and Punishment*), as well as figures from Greek mythology such as Sisyphus and Atlas, the significance of *The New Cosmic Story* for this thesis on science-religion-and-literature is in Haught's insistence on the importance of story for understanding the cosmos—religion and science, included. Similar to Deane-Drummond's argument concerning narrative and drama, Haught's

[83] Haught, 44–45.
[84] Haught, 32.
[85] Haught, 34.
[86] Haught, 35.

thesis is an implicit argument for the importance of the form of story within science-and-religion.

Category: Particular texts

We have already introduced this category as part of the science-and-religion-in-literature method; however, it also presents itself within the literature-in-science-and-religion method. Research within this category is interested in the content, form, and authorship of particular texts. Although literary theory and criticism may be utilised in approaching a particular text, research of this kind is interested in particular texts rather than in the articulation or application of theories detached from particular texts. This category, under the literature-in-science-and-religion method, contains only one approach: revelatory.

Revelatory approach. The revelatory approach most directly contrasts with the explanatory approach, in that—like the explanatory approach—it is a use of particular texts that does not require the study of all the writings of a single author, treating the author as a key science-and-religion thinker, or the study of a single science-and-religion theme, concept, or problem across multiple texts by multiple authors. However, unlike the explanatory approach, the revelatory approach seeks to apply literary analysis tools to a text and then assesses whether what has been revealed by such analysis is relevant to the science-and-religion field. Priority is given to the literary analysis of the text. I have come across only one example of a

revelatory approach: an unpublished conference paper by Mark Harris, who uses the approach with Aldous Huxley's *Brave New World*.

In '"Heretical … dangerous and potentially subversive": The problem of Science and Religion in Aldous Huxley's *Brave New World*', presented at the American Academy of Religion in 2014, Harris critically analyses the treatment of science and religion in the novel, with attention to character, plot, and themes. Harris reveals that, instead of portraying a vision in which science is triumphant and religion has nearly disappeared, *Brave New World* portrays science and religion not competing with each other, but each with a third party: 'the social, political, and ideological/metaphysical "glue" that holds the Brave New World together, as personified by Mustapha Mond'.[87] What is revealed to the science-and-religion field is '[t]he idea that science and religion actually interact through such a third party': 'Neither science nor religion are monolithic entities in this novel so much as contingent cultural expressions, and they live, struggle or die as cultural expressions competing against others, rather than each other.'[88] Harris concludes his paper by addressing what literature can potentially offer to the science-and-religion field: 'I believe that *Brave New World* allows us to look at the relationship between science-religion in whole new ways, and especially in ways that take into account social and political realities.'[89] Harris continues:

> I hope that … I have begun to point to ways in which this novel can be read as investigating *in narrative form* some of the potential cultural

[87] Mark Harris, '"Heretical . . . Dangerous and Potentially Subversive": The Problem of Science and Religion in Aldous Huxley's Brave New World' (paper, 2014 American Academy of Religion Annual Meeting, San Diego, CA, 2014).

[88] Harris.

[89] Harris.

> complexities of the science-religion discourse. If science and religion are so often read as being in conflict in this novel (and by extension in our own times), then it is perhaps not because they relate so in and of themselves, but because conflict arises in the third party, the socio-political "glue" of our times. Caught within it as we are, the societal "glue" of our times is almost invisible, but by using satire *in story form* Huxley's novel presents it for scrutiny.[90]

Although Harris's analysis comes from a close literary study of a particular text, he identifies implications beyond this text (with references to the narrative and story form) for the science-and-religion field, that of cultural complexities.

It is important to notice the difference between authorial and revelatory approaches at this point, due to a shared text by June Deery (explored above) and Mark Harris. Deery studies Huxley's ideas across all of his works, such that she writes a biography of his mind/ideas. Harris, on the other hand, challenges Huxley's interpretation of his own work in *Brave New World*.[91] Harris does not treat Huxley as a key science-and-religion thinker, but rather studies *Brave New World* as a literary text capable of revealing something about society in which science and religion interact, to which science-and-religion discourse should pay attention. Because I discovered only one, unpublished example of a revelatory approach, Part Three of this thesis will be dedicated to an in-depth portrayal of the revelatory approach, including examples of the explanatory approach using the same case study texts, for the sake of comparison. The revelatory approach will also be assessed in Chapter 10 (Part Four).

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[90] Harris. Emphasis original.
[91] Harris.

Conclusion

This chapter has mapped the nascent field of science-religion-and-literature. This mapping, the methods (science-and-religion-in-literature and literature-in-science-and-religion), categories (particular texts and literary theory), and approaches (authorial, thematic, explanatory, revelatory, critical theory, and literary theory/story) described, and the allocation of example texts are all of my own devising, using my exploration of scholarship that brings together literature, religion, and science.

Part One, which has included this chapter and the previous, sought to introduce the reader to the science-religion-and-literature subfield within science-and-religion. Because much of the benefit of studying literature in science-and-religion is revealed through the literature-in-science-and-religion method, Parts Two and Three of this thesis will present this method through the literary theory and particular texts categories. Part Two explores the intersection of literature with society, religion, and science in the form of critical theory and literary language or story. Part Three explores the revelatory approach, using Margaret Atwood's *MaddAddam* trilogy.

Part Two

Using Literary Theory: Literature and Society, Religion, and Science

Chapter 3

Literature and Society

Introduction

Part Two of this thesis portrays the use of literary theory, including the use of critical theory and use of the concepts of literary language or story, at the intersections of literature with society, religion, and science. Because examples of bringing literature, religion, and science together using literary theory already exist, as shown in Chapter 2, such three-way connections will not be completed in Part Two. However, Chapters 3 through 5 are included in order to provide a resource of the possible themes, sub-disciplines, and methods of enquiry for methods using literary theory in science-religion-and-literature in order to complement the examples explored in Chapter 2. Chapter 3 will present research and theories at the intersection of literature and society. Chapter 4 will present research and theories at the intersection of literature and religion. Chapter 5 will present research and theories at the intersection of literature and science. One will notice the common factor of literature in these three chapters. The use of literary theory to incorporate literature into a science-religion-and-literature study lends itself to a literature-in-science-and-religion method, as shown in Chapter 2. I suspect the reason for this is that scholars capable of engaging literary theory are already likely to be literary scholars of a sort, and they are, therefore, likely going to maintain the equality (if not primacy) of their field and its subject (whether literary theory or particular literary works) alongside that of religion, science, and science-and-religion.

This current chapter will present various research on the intersection of religion and society. American philosopher Martha Nussbaum argues that literature plays 'a vital role in educating citizens of the world'.[1] Margaret Atwood has also identified the role she sees fiction and fiction writing holding within our society: 'Especially now that organized religion is scattered and in disarray, and politicians have, Lord knows, lost their credibility, fiction is one of the few forms left through which we may examine our society not in its particular but in its typical aspects; through which we can see ourselves and the ways in which we behave towards each other, through which we can see others and judge them and ourselves.'[2] This chapter will consider literature's intersection with three sections of society: ethics, pedagogy, and philosophy. This chapter will be significantly briefer than chapters relating literary theory to religion and science; the intention of this chapter is to give a brief overview of relevant intersections that fall outside of the usual boundaries of religion and science. Furthermore, the research presented herein will often relate to narratives, fictions, and speculative or science fictions, due to the case study used in Part Three.

Ethics

In a world that is increasingly driven by scientific discovery and technological innovation, there remain critical voices advocating for the importance of literature

[1] Martha Nussbaum, *Cultivating Humanity: A Classical Defense of Reform in Liberal Education* (Cambridge, MA: Harvard University Press, 1997), 88.

[2] Margaret Atwood, 'An End to Audience?', in *Second Words: Selected Critical Prose* (Toronto: Anansi, 1982), 346.

for its ethical import. One such voice is that of Martha Nussbaum, who seeks to explore 'the therapeutic good that philosophy brings society'.[3] Most of Nussbaum's work is concerned with ethics, emotions, politics, and literature.[4] In her 1997 book, *Cultivating Humanity: A Classical Defense of Reform in Liberal Education*, Nussbaum contends that narrative imagination, especially that encouraged through drama and fiction, 'is an essential preparation for moral interaction'.[5] Nussbaum argues that literature should be an integral part of liberal education, including works of the traditional Western 'canon' and new works that can aid in helping us understand those who are different. This is made possible because '[n]arrative art has the power to make us see the lives of the different with more than a casual tourist's interest—with involvement and sympathetic understanding, with anger at our society's refusals of visibility'.[6] Nussbaum thus sees literature as a vehicle for education and societal betterment by promoting understanding and compassion for the life of another. However, Nussbaum does not just want us to empathise and experience, but also to ask critical questions about such reading-enabled experiences. Elsewhere, Nussbaum states that 'literary forms call forth certain specific sort of practical activity in the reader that can be evoked in no other way'.[7] Such a bold claim reveals that Nussbaum is not merely concerned with critical thinking, but also with appropriate

[3] Vincent B. Leitch, ed., 'Martha C. Nussbaum', in *The Norton Anthology of Theory and Criticism*, 2nd ed. (New York: W. W. Norton & Company, 2010), 2302.

[4] Leitch, 2303. As narrative theology is often linked with moral theology, an article by Nussbaum is included in a collection of essays intended to provide an overview of the diverse narrative theology field. See Martha Nussbaum, 'Narrative Emotions: Beckett's Genealogy of Love', in *Why Narrative? Readings in Narrative Theology*, ed. Stanley Hauerwas and L. Gregory Jones (Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989), 216–48.

[5] Nussbaum, *Cultivating Humanity: A Classical Defense of Reform in Liberal Education*, 90.

[6] Nussbaum, 88.

[7] Nussbaum, 'Narrative Emotions: Beckett's Genealogy of Love', 221.

actions. Indeed, Nussbaum desires literarily astute citizens of the world to embody a 'radical political agenda': 'the equal worth of all human beings'.[8] Such a political agenda must be upheld by a society's actively voting citizens.

Also interested in literature's ethical import is the American critic of novel, rhetoric, and ethics, Wayne Booth. Booth introduces his book, *The Company We Keep: An Ethics of Fiction*, thus:

> The book now aims, first, to restore the full intellectual legitimacy of our common-sense inclination to talk about stories in ethical terms, treating the characters in them and their makers as more like people than labyrinths, enigmas, or textual puzzles to be deciphered; and, second, it aims to "relocate" ethical criticism, turning it from flat judgment for or against supposedly stable works to fluid conversation about the qualities of the company we keep—and the company that we ourselves provide.[9]

Booth does indeed achieve both of these aims. Booth suggests that 'perhaps we all underestimate the extent to which we absorb the values of what we read',[10] for 'fictions are the most powerful of all the architects of our souls and societies'.[11] Booth helpfully defines a given text as 'a given implied author',[12] such that '[i]nstead of asking whether this book, poem, play, movie, or TV drama will turn me toward virtue or vice tomorrow, we now will ask what kind of company it offers me today.'[13] Booth, in effect, turns a text into a person, who is distinct from the characters within the text, the text's narrator, and the real-life author. Reflecting on Booth's manoeuvre, Nussbaum explains that through the implied author, '[a] work that contains few or

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[8] Nussbaum, *Cultivating Humanity: A Classical Defense of Reform in Liberal Education*, 112.

[9] Wayne C. Booth, *The Company We Keep: An Ethics of Fiction* (Berkeley, California: University of California Press, 1988), x.

[10] Booth, 41.

[11] Booth, 39.

[12] Booth, 91.

[13] Booth, 169.

no sympathetic, admirable characters may still promote sympathy and respect in the reader through the sort of interaction the work as a whole constructs'.[14] Booth supplies a list of the spectrums of qualities that our book-friends may provide: quantity of invitations, degree of responsibility, degree of intimacy, intensity of engagement required, coherence of world, distance between story world and our world, and the range of kinds of activities suggested.[15] These qualities also exist within human friendships. Booth's aim to achieve a fluid conversation in ethical criticism comes from one of his underlying principles: 'every reader must be his or her own ethical critic'.[16] However, we must be aware that 'the true ethical effect of our narrative experience, no matter how prolonged it is, depends largely on the precise, detailed patterning of our desires from moment to moment'.[17] Aware of this fickleness within ourselves, we must remember that '[p]owerful narratives provide our best criticism of other powerful narratives'.[18] The fluid conversation is thus carried out between reader and implied author, between various implied authors (narratives or texts) of a single reader, and then between different readers. Booth concludes thus: 'Rather than taking this, as some have done, as a reason for rejecting ethical criticism, it should be seen as a good reason for rejecting the search for universal prescriptions and proscriptions. The fact that no narrative will be good or bad for all readers in all circumstances need not hinder us in our effort to discover

[14] Nussbaum, *Cultivating Humanity: A Classical Defense of Reform in Liberal Education*, 101.
[15] Booth, *The Company We Keep: An Ethics of Fiction*, 179–80.
[16] Booth, 237.
[17] Booth, 297.
[18] Booth, 282.

what is good or bad for us in our condition *here and now*.'[19] Booth successfully maintains the discourse of the ethics of fiction, and he thus maintains it at a far more personal level (person-by-person; book-by-book) than does Nussbaum.

Martha Nussbaum and Wayne Booth present arguments for the power of fiction to influence the lives of readers, but such a process remains to be explored at the cognitive level. It is this process that Johan De Smedt and Helen De Cruz explore in their article 'The Epistemic Value of Speculative Fiction'. De Smedt and De Cruz proceed by using cognitive science to compare speculative fiction with analytic philosophy, specifically philosophical thought experiments.[20] They conclude that the two modes of thinking 'rely on similar cognitive mechanisms', such as episodic future thinking and counterfactual reasoning; however, 'speculative fiction, unlike analytic philosophy, elicits transportation by drawing readers emotionally into a story and reduces the need for cognitive closure. As a result, speculative fiction allows for a richer exploration of philosophical positions than is possible through ordinary philosophical thought experiments.'[21] The authors use the term 'transportation' to 'describe the phenomenon of the reader being fully immersed and drawn into a fictional world' such that the reader is enabled to 'think along with the fictional characters' mental states' and 'elicit emotions by providing a safe, risk-free environment'.[22] Similar to Nussbaum's emphasis on the role of emotion, De Smedt

[19] Booth, 489. Italics original.

[20] Johan De Smedt and Helen De Cruz, 'The Epistemic Value of Speculative Fiction', *Midwest Studies in Philosophy* 39, no. 1 (2015): 59, https://doi.org/10.1111/misp.12035.

[21] De Smedt and De Cruz, 59.

[22] De Smedt and De Cruz, 62. For transportation definition origin, see Richard J. Gerrig, *Experiencing Narrative Worlds: On the Psychological Activities of Reading* (New Haven, Connecticut: Yale University Press, 1993). Such discussions of the mental activities involved in reading narrative fall under the discourse category of cognitive narratology. For more information, see David Herman,

and De Cruz argue that '[s]ometimes, one needs to be emotionally invested in a hypothetical situation to fully appreciate its consequence', and in such instances, 'fiction seems a better tool to explore the consequences of particular philosophical views'.[23] Such fiction-enabled engagement allows for contexts to matter, creates room for more open-ended thinking that avoids cognitive closure, and provides a platform for one to assess the consequences of holding a particular philosophical position.[24] The authors provide support for their findings by analysing three speculative fiction texts that explore philosophical ideas and by interviewing philosophers who write fantasy or science fiction and who, in their responses, confirm De Smedt's and De Cruz's hypothesis. De Smedt and De Cruz have offered a similar conclusion to that of Nussbaum, this time at the cognitive level rather than at the societal level. According to the study by De Smedt and De Cruz, speculative fiction allows readers to better assess philosophical positions found therein.

Considering a literature-in-science-and-religion method, De Smedt and De Cruz's conclusion highlights the benefit of literature (in the form of literary theory) to the often abstract and theoretical discussions found within the science-and-religion field. Literature can provide necessary context and evoke emotions that allow for an experiential engagement (through 'transportation') of such topics as bioethics, eco-theology, and divine action. For example, a scholar interested in the intersection of

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'Cognitive Narratology (Revised Version; Uploaded 22 September 2013)', in *The Living Handbook of Narratology*, ed. Peter Hühn et al. (Hamburg: Hamburg University), accessed 9 January 2017, http://www.lhn.uni-hamburg.de/article/cognitive-narratology-revised-version-uploaded-22-september-2013.

[23] De Smedt and De Cruz, 'The Epistemic Value of Speculative Fiction', 63.

[24] De Smedt and De Cruz, 63–65.

literature and bioethics writes, 'The literary representation of bioethical concerns enables us to see cases as embedded in specific human contexts and to understand the powerful emotions and intricate interpersonal dynamics that lie behind a bioethical case and that should thus play a role not only in moral reasoning but also in practical decision making.'[25] This degree of engagement can enable readers to critically assess the consequences of scientific and philosophical theories and technological innovations.

Pedagogy

Michael Svec and Mike Winiski, in an article entitled 'SF and Speculative Novels: Confronting the Science and the Fiction', report on a first-year science seminar titled 'Mars: On the Shoulder of Giants'. They describe the course thus: 'This course focuses on how scientific knowledge is developed through the lens of our changing view of Mars throughout history. Analyses of current studies of Mars are juxtaposed against historical understanding and perceptions of the planet found in scientific and popular literature of the day, as well as the movies.'[26] Rather than focusing on the classroom benefit of debunking bad science in fictional works, the authors 'argue for another use, feeding the imagination and creative side of the future scientist' in the form of 'what if' questions.[27] The authors also note that a focus

[25] Valentina Adami, 'Between Bioethics and Literature: Representations of (Post-)Human Identities in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*', *Pólemos* 6, no. 2 (2012): 250–51, https://doi.org/10.1515/pol-2012-0015.

[26] Michael Svec and Mike Winiski, 'SF and Speculative Novels: Confronting the Science and the Fiction', in *Science Fiction and Speculative Fiction: Challenging Genres*, ed. P. L. Thomas, Critical Literacy Teaching Series: Challenging Authors and Genre 3 (Rotterdam: Sense Publishers, 2013), 42.

[27] Svec and Winiski, 36.

only on realistic portrayals of science is complicated with our evolving scientific understating, as '[t]he plausible and the possible are a moving and interwoven target'.[28] Therefore, Svec and Winiski, knowing that '[m]any scientists trace their inspiration to science fiction',[29] focus on the pedagogical value of science fiction, which 'illustrates the cycles of science feeding speculation and vice-versa'.[30] The authors define four elements used to guide their selection of science fiction works for their course: (1) a '[d]eep description of the science content or technologies that were plausible or accurate to the time period'; (2) a 'plausible innovation as a key element in the speculation', which they call the 'novum'; (3) an '[e]xploration of the impact on society and humanity', which they refer to as the 'big picture'; and (4) an understanding of the nature of '[s]cience and technology as human endeavors'.[31] After conducting the course four times and interviewing various students, Svec and Winiski conclude that '[t]he four elements created a classroom that encouraged speculation and fostered the very habits of mind consistent with being a scientist', including 'curiosity, imagination, and creativity'; furthermore, as a result of using science fiction in the course, 'the connections between science, technology, and society were richly explored'.[32]

The significance of Svec's and Winiski's study, as it relates to this thesis, is in the pedagogical import of speculative and science fiction in relation to the scientific

[28] Svec and Winiski, 37.

[29] Svec and Winiski, 35.

[30] Svec and Winiski, 38.

[31] Svec and Winiski, 38. For further science fiction genre discussions, see Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*; and Malmgren, *Worlds Apart: Narratology of Science Fiction*.

[32] Svec and Winiski, 'SF and Speculative Novels: Confronting the Science and the Fiction', 54.

pursuits of potential scientists, especially as the works relate to the bigger picture of their lived experiences (scientific and non-scientific). This includes encouraging the imaginative innovation required of scientists, as well as an awareness of the physical and ethical limitations of science and technology.[33] This study serves as an exemplary precedent for the practice of using a speculative fiction work to assess reality beyond the text, and, in its observational nature, progresses beyond the political and ethical theorising of Martha Nussbaum and Wayne Booth and the epistemic focus of De Smedt and De Cruz.

Philosophy

The connection between literature and philosophy arguably encapsulates the first two sections on ethics and pedagogy. It could include diverse studies ranging from semiotics to aesthetics or the ontological status of fictional characters and much more. This section will focus on just one example of a study within this area, which can be articulated in the question: 'What is the relation between a narrative and the events it depicts?'[34]

This is the opening question to David Carr's article, 'Narrative and the Real World: An Argument for Continuity'. Carr argues against radical discontinuity between narrative and reality, which claims that '[r]eal events simply do not hang

[33] For another example of literary ideas having scientific consequences, see Gregory Benford, 'Effing the Ineffable (1986 Eaton Conference)', in *Bridges to Science Fiction and Fantasy: Outstanding Essays from the J. Lloyd Eaton Conferences*, ed. Gregory Benford et al. (Jefferson, NC: McFarland & Company, 2018), 58–69.

[34] David Carr, 'Narrative and the Real World: An Argument for Continuity', *History and Theory* 25, no. 2 (May 1986): 117.

together in a narrative way', thus narrative is untrue to life.[35] According to the discontinuity view, the real world may be said to be merely sequential; the issue is one of representation. The discontinuity view could be summarised thus: 'A story *re*describes the world; in other words, it describes it *as if* it were what presumably, in fact, it is not.'[36] Carr's first criticism of the discontinuity view concerns a disagreement about what is 'reality', for it is not physical reality but human reality, 'which is portrayed in stories and histories and against which narrative must be measured if we are to judge the validity of the discontinuity view'.[37] Carr claims that discontinuity proponents forget, not birth and death, but 'all the other less definitive but still important forms of closure and structure to be found along the path from the one to the other'.[38] 'Thus,' concludes Carr, 'the events of life are anything but a mere sequence; they constitute rather a complex structure of temporal configurations that interlock and receive their definition and their meaning from within action itself.'[39] Carr's second critique concerns the argument of the discontinuity view proponent that real-life lacks a teller that turns events into story. While Carr admits that the real-life agent does not have access to real future events, he argues that 'the very essence of action is to strive to overcome that limitation [being in the present, subject to the potential unforeseen event] by foreseeing as much as possible', thus 'we are constantly striving … to occupy the story-tellers'

[35] Carr, 117.
[36] Carr, 120. Italics original.
[37] Carr, 121.
[38] Carr, 122.
[39] Carr, 122.

position with respect to our own lives'.[40] Stories are, therefore, 'told in being lived and lived in being told'.[41] Carr conceives of narrative activity in this sense as both practical and ethical. Furthermore, this sort of singular narrative activity can occur at the community level. Not only are stories social in the sense that 'the story of one's life and activity is told as much to others as to oneself',[42] but stories can give rise to communities: 'a community exists where a narrative account exists of a *we* which persists through its experiences and actions'.[43] Thus, Carr concludes that narratives must be regarded as an extension from the primary features of the structure of the events they depict. Carr's article brings us back to Nussbaum and the social benefit of narrative; not only do fictional narratives help better communities, but narratives (of the 'I' and 'we' type) help to initially form communities.

Conclusion

This brief chapter on the intersection of literature and society is the first of three chapters on the use of literary theory as it might relate to science-and-religion. Although this chapter is not focused on science or religion, the content on ethics, pedagogy, and philosophy within society provides wider context for the intersection of literary theory with science, religion, and the science-and-religion field. The next chapter will look at the use of literary theory in relation to religion.

[40] Carr, 125.
[41] Carr, 126.
[42] Carr, 127.
[43] Carr, 130. For further analysis of community building and the role of narrative, see M. Scott Peck, *The Different Drum: Community-Making and Peace* (New York: Simon and Schuster, 1987).

Chapter 4

Literature and Religion

Introduction

Theologian and literary scholar David Jasper claims that '[t]heology simply cannot be studied alone inasmuch as it participates in the complex unity of which it is a part and which is alone accessible through the broad exchanges made within culture.'[1] For Jasper, one such exchange of theology with culture is that of theology with literature: '[W]here theology has stumbled and fallen silent, the voices of the poets and writers have continued to speak and be heard … Literature continues to speak, even in the midst of silence, and possibly because it has always been sensitive, in a way that theology paradoxically has often not been, to the inaudibility of the word, to the silence and darkness of God.'[2] In this chapter, we will be discussing religion more broadly than theology proper; furthermore, we will step towards the blurred edges of religion toward spirituality. However, Jasper's comments on the relation of literature and religion reach even there:

> It is hardly surprising then, as theological interest in and studies of mysticism proliferate, that the study of literature and theology has begun importantly to suggest that our own time is experiencing not so much a dilution of belief as a shift away from traditional theological and ecclesial forms of belief and that literature is (and perhaps always has been) a major expression of religious beliefs and experiences that have often been suppressed by the very guardians of theology.[3]

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[1] David Jasper, *Literature and Theology as a Grammar of Assent* (Farnham: Ashgate, 2016), 7.

[2] David Jasper, 'The Study of Literature and Theology', in *The Oxford Handbook of English Literature and Theology*, ed. Andrew W. Hass, David Jasper, and Elisabeth Jay (Oxford: Oxford University Press, 2007), 28.

[3] Jasper, 29.

Jasper is also aware of the interest in religion and literature beyond the walls of academia, claiming that 'in a world now much more conscious of the multiplicity of beliefs, or none, … the study of religion (or theology) and literature cannot simply be a merely intellectual or academic exercise, and … the literary participates in this excess beyond the academy as much as (and perhaps even more than) the theology and religion'.[4] As fulfilling this call, consider the work of New Testament scholar James F. McGrath, one of whose books was included in Chapter 2, who notes the effectiveness of science fiction to trace cultural trends[5] and to engage the realm of ethics.[6]

This chapter is the second of three considering the use of literary theory in the science-religion-and-literature field. This chapter will provide examples of studies at the intersection of literature and religion by exploring three discourses with significant scholarly attention: biblical narrative, narrative theology, and spirituality and speculative fiction.

Biblical Narrative

Biblical narrative is perhaps the most easily identifiable intersection of literature and religion, especially from within the perspective of Christianity-influenced western civilisation. The phrase *the Bible as literature* originated in the nineteenth century, coined by Matthew Arnold; however, the attempt to understand

[4] Jasper, *Literature and Theology as a Grammar of Assent*, 3, 6.

[5] James F. McGrath, 'Introduction: Religion and Science Fiction', in *Religion and Science Fiction*, ed. James F. McGrath, eBook (Cambridge: Lutterworth Press, 2012), 3.

[6] McGrath, 6.

the Bible as a work of aesthetic value is as old as most other methods of biblical study.[7] In the words of New Testament scholar Stephen D. Moore, 'Narrative seeps and trickles throughout the entire Bible.'[8] In this section we will consider the work of biblical narrative.

Discussing the narrative turn in biblical studies, Danna Nolan Fewell states that '[t]he field of biblical studies has in recent years also given much attention to narrative and is beginning to expand its understanding of the relationships between the poetics of biblical narrative and the kinds of cognitive, social, and identity-constructing work that biblical narratives do.'[9] Fewell refers to the work of biblical narrative as a 'transdisciplinary enterprise', exposing how narrative is, ultimately, 'essential to our very survival';[10] for 'to be human is to tell and interpret stories, to conceive of ourselves as living out and living by stories, and to see our individual stories as components of, as contributions to larger family, social, institutional, or national stories.'[11] For Fewell, such a transdisciplinary enterprise covers narrative identity, the sociality of narrated experience, the narration of trauma, and the use of multiple stories to 'think with'.[12] Other biblical narrative scholars have brought attention to the relation between biblical narrative and prose literature,[13] the use of

[7] Steven Weitzman, 'Before and After The Art of Biblical Narrative', *Prooftexts* 27, no. 2 (2007): 191–92.

[8] Stephen D. Moore, 'Biblical Narrative Analysis from the New Criticism to the New Narratology', in *The Oxford Handbook of Biblical Narrative*, ed. Danna Nolan Fewell (Oxford: Oxford University Press, 2016), 27.

[9] Danna Nolan Fewell, 'The Work of Biblical Narrative', in *The Oxford Handbook of Biblical Narrative*, ed. Danna Nolan Fewell (Oxford: Oxford University Press, 2016), 3.

[10] Fewell, 3.

[11] Fewell, 5.

[12] Fewell, 18.

[13] See Robert S. Kawashima, 'Biblical Narrative and the Birth of Prose Literature', in *The Oxford Handbook of Biblical Narrative*, ed. Danna Nolan Fewell (Oxford: Oxford University Press, 2016), 51–60.

poetry within biblical narratives,[14] cross-cultural readings of biblical narratives,[15] the syncretisation of biblical narrative with local narratives,[16] and the relation of ethics to biblical narrative.[17] Although specific methodologies used with biblical narrative criticism vary, Stephen Moore clarifies that '[w]hat does qualify [as biblical narrative analysis], in the minds of most, is analysis that is attuned to plot, characterization, and other constitutive features of narrative—in a word (or two), *narrative criticism*'.[18]

It could be argued that no one is more responsible for the emergence of contemporary literary studies of the Bible than Robert Alter.[19] For Steven Weitzman, it is hard to imagine a more successful academic book than Alter's *The Art of Biblical Narrative* based on the number of books sold, favourable reviews, and frequency of citation.[20] Originally published in 1981, a revised and expanded edition was published in 2011.[21] In this book, Alter analyses the Bible in literary terms, such as narration, dialogue, repetition, and characterisation.[22] According to Frederick Luis Aldama, Alter's 'award-winning work in this area has opened up vast possibilities for scholars

[14] See Tod Linafelt, 'Poetry and Biblical Narrative', in *The Oxford Handbook of Biblical Narrative*, ed. Danna Nolan Fewell (Oxford: Oxford University Press, 2016), 84–92.

[15] Jione Havea and Monica Jyotsna Melanchthon, 'Culture Tricks in Biblical Narrative', in *The Oxford Handbook of Biblical Narrative*, ed. Danna Nolan Fewell (Oxford: Oxford University Press, 2016), 563–72.

[16] Gerald West, 'Global Thefts of Biblical Narrative', in *The Oxford Handbook of Biblical Narrative*, ed. Danna Nolan Fewell (Oxford: Oxford University Press, 2016), 573–84.

[17] Gary A. Phillips, 'The Commanding Faces of Biblical Stories', in *The Oxford Handbook of Biblical Narrative*, ed. Danna Nolan Fewell (Oxford: Oxford University Press, 2016), 585–97.

[18] Moore, 'Biblical Narrative Analysis from the New Criticism to the New Narratology', 27. Italics original.

[19] Brian Britt, 'Robert Alter and the Bible as Literature', *Literature and Theology* 24, no. 1 (2010): 56, https://doi.org/10.1093/litthe/frp054.

[20] Weitzman, 'Before and After The Art of Biblical Narrative', 196.

[21] Robert Alter, 'A Life of Learning: Wandering Among Fields', *Christianity and Literature* 63, no. 1 (2013): 94.

[22] See Robert Alter, *The Art of Biblical Narrative*, revised and updated ed. (New York: Basic Books, 2011).

of fiction to read the Bible as carefully crafted prose and poetry created by sophisticated literary artists'.[23] In the mid-1990s, Alter, who claims to be 'a literary person through and through', also became a biblical translator and commentator, as well.[24] Alter points out that 'the bulk of the Hebrew Bible is made up of narrative and poetry, and much of it is extraordinarily original and both formally and conceptually complex'; therefore, '[t]he preponderantly literary character of the Hebrew Bible has important consequences for how anyone, even the most devout person, should read it'.[25] Ultimately, according to Alter, '[t]o take in with any precision what the biblical writers meant to say about God, creation, history, human nature, morality, and the destiny of the people of Israel, you need an informed understanding of literary modalities they employed to express their vision'.[26] Contrasting his approach with other methods of biblical scholarship, Alter writes, 'Subsequent religious tradition has by and large encouraged us to take the Bible seriously rather than to enjoy it, but the paradoxical truth of the matter may well be that by learning to enjoy the biblical stories more fully as stories, we shall also come to see more clearly what they mean to tell us about God, man, and the perilously momentous realm of history.'[27]

Published soon after *The Art of Biblical Narrative*, Northrop Frye's *The Great Code: The Bible and Literature* is based upon his famous course and is intended as an introductory handbook for the general reader. Frye admits that the book is not

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[23] Frederick Luis Aldama and Robert Alter, 'A Long View of the Narrative Studies Professions: An Interview with Robert Alter', *Narrative* 26, no. 3 (2018): 359.

[24] Alter, 99, 103. For example, see Robert Alter, *Genesis: Translation and Commentary* (New York: W. W. Norton & Company, 1996); Robert Alter, *The Hebrew Bible: A Translation with Commentary*, 3 vols (New York: W. W. Norton & Company, 2019).

[25] Alter, 'A Life of Learning: Wandering Among Fields', 100.

[26] Alter, 100.

[27] Alter, *The Art of Biblical Narrative*, 235.

intended to be scholarly, especially not up to par with biblical scholarship; rather it is intended to reflect the tactics of teaching. Frye opens his book claiming that it 'attempts a study of the Bible from the point of view of a literary critic.'[28] Frye defends his literary approach to the Bible with the claim that 'no book could have had so specific a literary influence without itself possessing literary qualities';[29] thus a question driving his book is revealed to be: 'What in the Bible particularly attracts poets and other creative artists of the Western world?'[30] The connection between the Bible and literary criticism is clear for Frye: 'Many issues in critical theory today had their origin in the hermeneutic study of the Bible; many contemporary approaches to criticism are obscurely motivated by a God-is-dead syndrome that also developed out of Biblical criticism; many formulations of critical theory seem to me more defensible when applied to the Bible than they are when applied elsewhere.'[31] Frye takes his reader through a chiastic journey: covering first the order of words (language, myth, metaphor, and typology), then the order of types (typology, metaphor, myth, and language). Most important for our study of the Bible and literature, and later for the literary understanding of Margaret Atwood, our case study author, is Frye's concept of myth: 'There are and remain two aspects of myth: one is its story-structure, which attaches it to literature, the other is its social function as concerned knowledge, what it is important for a society to know.'[32] Frye considers

[28] Northrop Frye, *The Great Code: The Bible and Literature* (London: Routledge & Kegan Paul, 1982), xi.

[29] Frye, xvi.

[30] Frye, 106.

[31] Frye, xix.

[32] Frye, 47.

the Bible to be a myth in both of these senses; telling a story and, furthermore, a story of societal importance.

This section on biblical narrative reveals the methodological interconnection between literary theory and biblical interpretation. Not only do biblical scholars turn to literary theory in order to study literary and narrative portions within the Bible, but literary theory itself has been heavily influenced by study of biblical texts.

Narrative Theology

This section on narrative theology will introduce the field of narrative theology, including its variety of voices and viable critiques. 'Narrative theology', writes Francesca Aran Murphy, 'intends to do something indispensable—to make theology less conceptual and more imaginative, that is, less theoretical and abstract, and more biblical'.[33] Murphy continues: 'Narrative theology is so called because it wants to use the biblical stories themselves … to speak of Christian faith and the Christian God. This seems a counter-weight to our twenty-first-century world, in which the abstract geometrics of virtual reality seem to condition not only the media of Christian preaching and teaching, but the message.'[34] Writing at the same time as Murphy, Alexander Lucie-Smith provides another definition of narrative theology: 'A narrative theology is one that starts not with abstract principles, but with a particular story; it is inductive rather than deductive. The story it examines is found, or "embodied", in a community's tradition, and is usually taken to sum up or

[33] Francesca Aran Murphy, *God Is Not a Story: Realism Revisited* (Oxford: Oxford University Press, 2007), 1.

[34] Murphy, 1.

encapsulate the community's particular experience of itself, the world and God.'[35] Stanley Hauerwas and L. Gregory Jones's *Why Narrative? Readings in Narrative Theology* provides an overview of the varied voices in and related to narrative theology, because 'summaries of views about narrative often oversimplify the wide variety of ways in which the category of narrative has been and can be used'.[36] Hauerwas and Jones provide a brief overview of such variety of ways:

> The category of narrative has been used, among other purposes, to explain human action, to articulate the structures of human consciousness, to depict the identity of agents (whether human or divine), to explain strategies of reading (whether specifically for biblical texts or as a more general hermeneutic), to justify a view of the importance of 'story-telling' (often in religious studies through the language of 'fables' and 'myths'), to account for the historical development of traditions, to provide an alternative to foundationalist and/or other scientific epistemologies, and to develop a means for imposing order on what is otherwise chaos.[37]

Narrative theology differs from systematic theology in both form and practice. Whereas systematic theology enables the study of sub-topics, such as hamartiology, soteriology, and eschatology, in its pursuit of constructing a complete metaphysics, narrative theology begins with an already completed and whole story. Also, as opposed to the tenets of systematic theology, which rely on cognitive construction and assent, '[n]arrative theology is to be understood by the whole person, as members of the community and tradition in which they find themselves, and above

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[35] Alexander Lucie-Smith, *Narrative Theology and Moral Theology: The Infinite Horizon*, Ashgate New Critical Thinking in Religion, Theology and Biblical Studies Series (Farnham: Ashgate, 2007), 1.

[36] Stanley Hauerwas and L. Gregory Jones, 'Introduction: Why Narrative?', in *Why Narrative? Readings in Narrative Theology*, ed. Stanley Hauerwas and L. Gregory Jones (Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989), 2.

[37] Hauerwas and Jones, 2.

all to be grasped through the liturgy'.[38] Although claims by narrative theologians about the centrality of story or narrative to human being and understanding may seem uncontentious, narrative theology remains open to critique, especially as it relates to universal reality.

Alexander Lucie-Smith claims that, in comparison to first principles that are considered divinely revealed or philosophically based, 'narrative theology, anchored in a particular community and its tradition, may be more modest in scope and may well imply that universalism is a mirage'.[39] Such an implication begs questions: '[H]ow does a narrative relate to the real world?'[40] Or, in the words of another critic: 'What is the relation of aesthetic truthfulness to historical-historiographical truth?' and 'Is aesthetic truthfulness the strongest and most reliable bridge to actuality? If we grant that metaphor is the indispensable speciality of imagination in story, what enables us to discern the "fit" of a metaphor with actuality?'[41] Such questions are perhaps most harshly summarised by Murphy: 'It is not easy to think of the contents of Christian theology as *real* whilst picturing them as a story. … *[D]o* we believe that Christianity is true in the sense in which we "believed" in *Batman* when we were six years old?'[42] Hauerwas, in response to such critique, would admit that he has often only given metaphysics 'a sidelong glance'.[43] Instead, 'Hauerwas is careful not to give a theory

[38] Lucie-Smith, *Narrative Theology and Moral Theology: The Infinite Horizon*, 5.

[39] Lucie-Smith, 1.

[40] Lucie-Smith, 11.

[41] Julian Hartt, 'Theological Investments in Story: Some Comments on Recent Developments and Some Proposals', in *Why Narrative? Readings in Narrative Theology*, ed. Stanley Hauerwas and L. Gregory Jones (Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989), 287–88.

[42] Murphy, *God Is Not a Story: Realism Revisited*, 303.

[43] Stanley Hauerwas, 'Why the Truth Demands Truthfulness: An Imperious Engagement with Hartt', in *Why Narrative? Readings in Narrative Theology*, ed. Stanley Hauerwas and L. Gregory Jones (Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989), 303.

of truth apart form a theological depiction of Jesus',[44] for 'truth was found in the person making truth claims, not in the claims independent of the person'.[45] Such a definition leads Hauerwas to make statements such as, 'What is crucial is not that Christians know the truth, but that they be the truth'.[46] Alexander Lucie-Smith seeks to address such questions in his book, *Narrative Theology and Moral Theology: The Infinite Horizon*, in which he proposes classifying narrative theologies into three models based upon their openness to the infinite horizon beyond the boundaries of a particular story:

> The first model helps people understand themselves, their reasons for acting and their membership of the group; the second model helps people to do this in a more profound way, and helps them to attain purity of heart, and to understand others, and the way their group relates to other groups and the world at large. The third model, however, points to those aspects that burst beyond the confines of the story as such. It thus provides a solution to the problem posed in the first chapter: if a story is a human thing, are stories about God human as well? The answer is that there are stories that may be human in origin but which are informed by infinity.[47]

Lucie-Smith insists that the Jesus story is a third-model story. According to Lucie-Smith, '[i]n the third model we discover not that we identify ourselves with people in the story (as in the first and second models) but rather that Christ has identified himself with us; in other words, entering the story does not depend on the reader's initiative, but is an act of grace on the part of Christ. Thus the third model presents

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[44] Gale Heide, *System and Story: Narrative Critique and Construction in Theology*, Princeton Theological Monograph Series (Eugene, Oregon: Pickwick Publications, 2009), xix. Note 21.

[45] Heide, 28.

[46] Stanley Hauerwas, *A Community of Character: Toward a Constructive Christian Social Ethic* (Notre Dame, Indiana: University of Notre Dame Press, 1981), 150.

[47] Lucie-Smith, *Narrative Theology and Moral Theology: The Infinite Horizon*, 194. Lucie-Smith classifies Hauerwas's narrative theology under the first model.

us with a narrative theology which is also a theology of grace.'[48] Although Lucie-Smith's three models fail to address metaphysics according to scientific naturalism (for example), he does succeed in suggesting an alternative to viewing all narratives as *merely* human-contingent. However, sceptical critics such as Francesca Murphy are still bound to persistently claim, along with Hans Urs von Balthasar, 'Without philosophy, there can be no theology'.[49] It, therefore, remains important to remember that narrative theologians are often already working within a theological framework that does not intend to doubt the ontological reality of God. For example, Stanley Hauerwas is more concerned about what the Christian story has to say to us about moral ethics, 'which is the same thing as theology for Hauerwas',[50] than what it has to say about ontological metaphysics.

Another definition of narrative theology is provided by Gale Heide, whose study of Hauerwas in *System and Story: Narrative Critique and Construction in Theology* seeks to understand the narrative theologian from within the framework of his own writings: '[In narrative theology] an attempt is being made to relate theology more closely to the church by epistemologically redefining theology as action'.[51] Heide summarises the thrust of Hauerwas's work thus:

> The theology of Stanley Hauerwas presents critical challenge to systematic theology in the contemporary context. He believes that the Christian narrative theology provided by the community of faith is the most appropriate context in which to 'do' theology. The 'doing' of theology, in such a context is not the academic reflection and thematic

[48] Lucie-Smith, 197.

[49] Hans Urs von Balthasar, *Theo-Logic: Theological Logical Theory*, trans. Adrian J. Walker, vol. 1 (San Francisco: Ignatius Press, 2000), 7. For Murphy's quotation of von Balthasar, see Murphy, *God Is Not a Story: Realism Revisited*, 311.

[50] Heide, *System and Story: Narrative Critique and Construction in Theology*, 66.

[51] Heide, xv.

> construction often associated with systematic theology. Instead, theology is best discovered and discussed as the living of the Christian life. Thus, theology is a discipline of the church, rather than of scholarly pursuit, though certainly scholarship may be included. Ecclesiology, then, becomes central for Hauerwas.[52]

The above definition of narrative theology and summary of Hauerwas's work within the narrative theology field more explicitly reveal the connections between narrative and the ethical actions of a specific community, such as the church. Indeed Hauerwas uses his narrative theology to make such claims as: '[Christians'] most important social task is nothing less than to be a community capable of hearing the story of God we find in the scripture and living in a manner that is faithful to that story';[53] '[t]he social ethical task of the church, therefore, is to be the kind of community that tells and tells rightly the story of Jesus';[54] and 'the church is the organized form of Jesus' story'.[55] Heide even states that '[n]arrative is but another name in Hauerwas's language for the community that forms and shapes the self to be virtuous'.[56] Hauerwas considers himself to be presenting an alternative epistemology to that of liberalism or the Enlightenment project. According to Hauerwas, '[l]iberalism seeks a philosophical account of morality that can ground the rightness or wrongness of particular actions or behavior in a "theory" divorced from any substantive commitments about what kind of people we are or should be—except perhaps to the

[52] Heide, 1. Shortly after making an attempt to summarise, Heide admits the challenge in such an exercise: 'Obviously, this is by no means an adequate representation of his theology, since he believes theology must be a living reality. Hauerwas never gives an overarching view of how it all "fits together".' See Heide, 7.

[53] Hauerwas, *A Community of Character: Toward a Constructive Christian Social Ethic*, 1.

[54] Hauerwas, 52.

[55] Hauerwas, 50.

[56] Heide, *System and Story: Narrative Critique and Construction in Theology*, 77–78.

extent that we should be rational or fair'.[57] However, Hauerwas does not believe such divorce between theory and particularities is possible: 'All our notions are narrative-dependent, including the notion of rationality.'[58] Therefore, Hauerwas's theological foundation is not rational epistemology; rather, '[h]is foundation is the reality of the lives of believers'.[59] Heide explains how Hauerwas connects the actions of the church with epistemology: 'The Christian tradition is not one that is to be measured by criteria established elsewhere. It is its own criteria. The Christian tradition is the embodiment of the life of Christ in the community called church. It is maintained and carried on throughout history as the church engages in the practices that make it church'.[60] Action, for Hauerwas, is primary;[61] hence the claim that ethics and theology are the same thing for the theologian.[62] Such a stance leads Hauerwas to claim that 'Christianity is not a set of beliefs or doctrines one believes in order to be a Christian, but rather Christianity is to have one's body shaped, one's habits determined, in such a manner that the worship of God is unavoidable'.[63] Thus, Hauerwas's narrative theology is derived from the practices of the church and is concerned with ethical actions produced through living out the story of Jesus Christ.[64]

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[57] Hauerwas, *A Community of Character: Toward a Constructive Christian Social Ethic*, 220.

[58] Stanley Hauerwas and David Burrell, 'From System to Story: An Alternative Pattern for Rationality in Ethics', in *Why Narrative? Readings in Narrative Theology*, ed. Stanley Hauerwas and L. Gregory Jones (Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989), 168.

[59] Heide, *System and Story: Narrative Critique and Construction in Theology*, 50.

[60] Heide, 129.

[61] Heide, 206.

[62] Heide, 66.

[63] Stanley Hauerwas, 'The Sanctified Body: Why Perfection Does Not Require a "Self"', in *Embodied Holiness: Toward a Corporate Theology of Spiritual Growth*, ed. Samuel M. Powell and Michael E. Lodahl (Downers Grove, IL: Inter-Varsity Press, 1999), 22.

[64] For examples of critiques of Hauerwas's particular narrative theology, see Lucie-Smith, *Narrative Theology and Moral Theology: The Infinite Horizon*; Heide, *System and Story: Narrative Critique and Construction in Theology*.

Although fictional narratives are sometimes used in narrative theology—for example, Hauerwas uses *Watership Down* to present the narrative context of social ethics in *A Community of Character*[65]—some scholars, such as Gale Heide, remain sceptical of such a practice. According to Heide, '[t]he fictional nature of the novel makes it a questionable comparison, since the characters can be shaped in ways that may or may not be "true to life"'.[66] Heide provides an hypothetical response to such a criticism: '[P]recisely because we can resonate with the humanness of the characters, they become "true to our lives." In a sense, we can join in their story because we feel that their lives are like our own in some ways; our aspirations and expectations become a part of the character development.'[67] However, Heide then provides an intentionally Hauerwasian rejection of the use of fiction:

> We can and should no longer pretend, with liberalism, that a universal anthropology is a satisfactory substitute for a *real* ecclesiology. This seems to be the trap into which fictional works fall: expecting a narrative resonance with all humanity (i.e., anthropology) to be sufficient grounding for ecclesiology. Though fictional works may be interesting and less messy than the lives of real people, their value seems limited to a bolstering of the theoretical. In other words, fiction is merely illustrative, which finally does little more to overcome liberal theorizing.[68]

Fictional works, according to Heide, not only seem to espouse liberalism in its implicit claims of universalism, but they also present a complicating layer of explicit unreality. Lucie-Smith proclaims another relevant warning: '[N]arrative theology, if it is to remain theology, must not collapse into some sort of religious literary theory; but

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[65] Hauerwas, *A Community of Character: Toward a Constructive Christian Social Ethic*, 12–35.
[66] Heide, *System and Story: Narrative Critique and Construction in Theology*, 91.
[67] Heide, 92.
[68] Heide, 92. Note 48.

nevertheless it can, with due caution, draw on what is termed literary theory.'[69] Narrative theology could be said to relate to approaches that rely on literary language or the concept of story, insisting that stories or narratives are integral to religion or to understandings of God.

Spirituality and Speculative Fictions

This section on the intersection of spirituality and speculative fiction[70] will provide an overview of the relevant understanding of *spirituality* in this context and then consider three forms of the intersection: the correspondence of spiritual content between speculative fiction and the nonfictional world, the consuming of texts for spiritual nourishment, and the development of spiritualities from fictional sources.

Resting at the cutting-edge of religious studies and the sociology of religion, *Fiction, Invention and Hyper-reality: From Popular Culture to Religion*, edited by Carole Cusack and Pavol Kosnáč, addresses the emergent subject area of contemporary religions that are based on fictional texts and those that include fictional texts in their canon of scriptures or inspirational phenomena.[71] Cusack and Kosnáč place the study of *fictional*, *invented*, and *hyper-real* religions near to the

[69] Lucie-Smith, *Narrative Theology and Moral Theology: The Infinite Horizon*, 2.

[70] The term speculative fiction will be given attention in Chapter 6 as it relates to our case study. For now, it will suffice to understand speculative fiction as an umbrella genre that includes the following genres: fantasy, science fiction, utopia, dystopia, and horror.

[71] Carole M. Cusack and Pavol Kosnáč, 'Introduction: Fiction, Invention and Hyper-Reality in New Religions and Spiritualities', in *Fiction, Invention and Hyper-Reality: From Popular Culture to Religion*, ed. Carole M. Cusack and Pavol Kosnáč, Routledge Inform Series on Minority Religions and Spiritual Movements (New York: Routledge, 2016), 1.

discipline of studying new religious movements within religious studies.[72] Also linked with new religious movements are studies under the terms *new age movement*,[73] *new age spirituality*,[74] *cultic milieu*,[75] or *spirituality*.[76] In the words of Cusack and Kosnáč, '[t]he principle reason to study the phenomena of fiction-based, invented or hyper-real religions is the challenge that such study presents to the classical understanding of what religion is and what "holiness" and "religiosity" look like'.[77] With similar sentiment, religious scholars Steven Sutcliffe and Ingvild Sælid Gilhus claim that 'studying "new age spiritualities" tantalizingly reproduces issues central to defining and theorizing religion in general'.[78] It is often the religious fields of new religious movements and new age spirituality that interact with postmodern popular culture, including its literature. Before discussing such interconnections, it will be helpful to briefly introduce the concept of spirituality used herein.

[72] These three labels are derived from the scholarship of Markus Altena Davidson, Carole M. Cusack, and Adam Possamai, respectively. See Adam Possamai, *Religion and Popular Culture: A Hyperreal Testament* (Oxford: Peter Lang, 2005); Carole M. Cusack, *Invented Religions: Imagination, Fiction, and Faith* (Farnham: Ashgate, 2010); Markus Altena Davidsen, 'The Spiritual Milieu Based on J.R.R. Tolkien's Literary Mythology', in *Handbook of Hyper-Real Religions*, ed. Adam Possamai (Leiden: Brill, 2012), 185–204; and Markus Altena Davidsen, 'Fiction-Based Religion: Conceptualizing a New Category Against History-Based Rleigion and Fandom', *Culture and Religion* 14, no. 4 (2013): 378–95.

[73] See Paul Heelas, *The New Age Movement: The Celebration of the Self and the Sacralization of Modernity* (Oxford: Blackwell Publishing, 1996).

[74] See Steven J. Sutcliffe and Ingvild Sælid Gilhus, eds., *New Age Spirituality: Rethinking Religion* (Durham: Acumen, 2013).

[75] See Colin Campbell, 'The Cult, the Cultic Milieu and Secularization', in *The Cultic Milieu: Oppositional Subcultures in an Age of Globalization*, ed. Jeffrey Kaplan and Heléne Lööw (Oxford: AltaMira Press, 2002), 12–25. Paper originally published in 1972.

[76] See Paul Heelas and Linda Woodhead, *The Spiritual Revolution: Why Religion Is Giving Way to Spirituality* (Oxford: Blackwell Publishing, 2005).

[77] Cusack and Kosnáč, 'Introduction: Fiction, Invention and Hyper-Reality in New Religions and Spiritualities', 3.

[78] Steven J. Sutcliffe and Ingvild Sælid Gilhus, 'Introduction: "All Mixed Up"--Thinking about Religion in Relation to New Age Spiritualities', in *New Age Spirituality: Rethinking Religion*, ed. Steven J. Sutcliffe and Ingvild Sælid Gilhus (Abingdon: Routledge, 2014), 1.

Since the 1980s, new age spiritualities, arising from within the cultic milieu, tend to be characterised in terms of individualism, spiritual shopping, seekership, and resistance to hierarchical organisation.[79] Colin Campbell, writing in 1972, describes the cultic milieu, out of which various particular cults arise, as 'the cultural underground of society'[80]—due to the shared position of heterodoxy or deviancy found therein—which offers 'aid, support, facilities and a form of fellowship to those in search of truth'.[81] New age spirituality has also been described as a 'third way', bridging the gap between membership within an organised religion and complete non-religiosity.[82] According to sociologist Paul Heelas, the main elements of new age self-spirituality are 'your lives do not work', 'you are Gods and Goddesses in exile', and 'let go/drop it'.[83] The third element is presented as a solution to the first; Heelas explains thus:

> The ego … must lose authority. To this end, the New Age provides a great range of spiritual disciplines, variously known as 'processes,' 'rituals' or 'psychotechnologies,' for example. Whether they take the form of meditation, activities similar to those found in psychotherapies, physical labor, dance, shamanic practices, magic, or, … fire-walking, sex, tennis, taking drugs or using virtual reality equipment, the aim … is to 'break on through to the other side.'[84]

Of note in Heelas's description is the alignment of what might be traditionally understood as secular and sacred; the deification of the self; and the material,

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[79] Anna Taves and Michael Kinsella, 'Hiding in Plain Sight: The Organizational Forms of "Unorganized Religion"', in *New Age Spirituality: Rethinking Religion*, ed. Steven J. Sutcliffe and Ingvild Sælid Gilhus (Abingdon: Routledge, 2014), 84–85.

[80] Campbell, 'The Cult, the Cultic Milieu and Secularization', 14.

[81] Campbell, 18.

[82] Taves and Kinsella, 'Hiding in Plain Sight: The Organizational Forms of "Unorganized Religion"', 87.

[83] Heelas, *The New Age Movement: The Celebration of the Self and the Sacralization of Modernity*, 18–20.

[84] Heelas, 20.

practical procedures for achieving transcendence. Another aspect of new age spirituality is its connection with capitalism. Lisbeth Mikaelsson notes the consumerism of the New Age, as exhibited by the plethora of self-help books, therapies, trinket shops, and management courses.[85] Mikaelsson argues that this market character allows new age spirituality to achieve success across normal dividing lines—a competitive element in contrast to organised religion, whose decline is explained by some theorists such as Steve Bruce using *the secularisation thesis*.[86] Stef Aupers and Dick Houtman argue for the social and public usefulness of new age spirituality, noting the strengthening relation between the New Age and business life.[87] Jeremy Carrette and Richard King depict the relationship between capitalism and spirituality negatively, seeking in their writing to 'challenge the commodification of life as well as [to] disrupt the domestication of diverse cultural traditions, practices and communities in terms of an increasing homogenized, sanitized, and socially pacifying conception of spiritualism'.[88] What is important to note, here, is the consumeristic aspect of postmodern spirituality. Now that we have briefly outlined the spiritual atmosphere participating in a relationship with

[85] Lisbeth Mikaelsson, 'New Age and the Spirit of Capitalism: Energy as Cognitive Currency', in *New Age Spirituality: Rethinking Religion*, ed. Steven J. Sutcliffe and Ingvild Sælid Gilhus (Durham: Acumen, 2013), 161.

[86] Mikaelsson, 163. For a discussion of the secularisation thesis, see Steve Bruce, *God Is Dead: Secularization in the West* (Oxford: Blackwell Publishing, 2002). For a spirituality-based response to the secularisation thesis, see Heelas and Woodhead, *The Spiritual Revolution: Why Religion Is Giving Way to Spirituality*.

[87] Stef Aupers and Dick Houtman, 'Beyond the Spiritual Supermarket: The Social and Public Significance of New Age Spirituality', in *New Age Spirituality: Rethinking Religion*, ed. Steven J. Sutcliffe and Ingvild Sælid Gilhus (Durham: Acumen, 2013), 174–96.

[88] Jeremy Carrette and Richard King, *Selling Spirituality: The Silent Takeover of Religion* (London: Routledge, 2005), x.

postmodern, popular literature, specifically speculative fictions, we can now explore examples of such intermingling.

One method of interaction between literature and spirituality is that of correspondence in spiritual content between speculative fictions and our nonfictional, extra-textual world. An example of this is the comics-focused book, *Do the Gods Wear Capes? Spirituality, Fantasy, and Superheroes*, by Ben Saunders.[89] Defending his use of the fantasy genre, Saunders claims, 'fantasy is *not* the opposite of reality, but is rather another way of making sense of that reality. To this extent, fantasy has the same function as reason, and cannot always be distinguished from it.'[90] Taking his readers through the comic-book instantiations of Superman, Wonder Woman, Spider-Man, and Iron Man, Saunders ultimately argues for the power of love that is inherent in religions such as Christianity. Saunders's introduction and conclusion are unusually intimate, leaving the reader with the impression of Saunders's passion for both religion and comics. In addition to sharing his passion, Saunders presents other hopes:

> [O]ne of the things I hope this study suggests is the ultimate falsehood of the characteristically modern oppositions between religion and science, or deism and humanism …. Superheroes do not render sacred concepts in secular terms for a skeptical modern audience, as is sometimes claimed. They do something more interesting; they deconstruct the oppositions between sacred and secular, religion and science, god and man [*sic*], the infinite and the finite, by means of an impossible synthesis. They are therefore fantasy solutions to some of the central dichotomies of modernity itself.[91]

[89] Comics (like graphic novels) are to be understood, here, as a particular form of storytelling, rather than as an additional genre under the umbrella of speculative fiction.

[90] Ben Saunders, *Do the Gods Wear Capes? Spirituality, Fantasy, and Superheroes*, New Directions in Religion and Literature (London: Continuum, 2011), 5. Italics original.

[91] Saunders, 142–43.

Saunders claims, here, that fantasy corresponds to reality in such a way that the spirituality depicted is shared by both the storyworld and our extra-textual, nonfictional world. A similar, though more complex, argument is made by J'annine Jobling concerning religious imagination.

J'annine Jobling, in *Fantastic Spiritualities: Monsters, Heroes, and the Contemporary Religious Imagination*, grounds her work explicitly in literary and religious theory. Speaking of the connection between fantasy and reality, Jobling states: 'Fantasy negotiates a boundary between the actual and the incredible, the real and the illusory. Fantasy, in fact, is inevitably a commentary on or counterpart to reality. As intimated, fantasy is related to myth, legend, folk tales, religion and the occult—all of which can be seen as expressions of deep human drives.'[92] This leads Jobling to her hypothesis that 'fantasies offer a sense of meaning, purpose and value which accords with spiritual concerns, anxieties and desires'.[93] Jobling's focus on the literary concept of myth—that we explored above in our discussion of Northrop Frye—provides her a conversation partner in mythologist Joseph Campbell.[94] Religious conversation partners include theorists of the new age movement/spirituality and the secularisation thesis mentioned above, such as Carrette and King, Heelas and Woodhead, and Bruce. Jobling claims that her study is not 'a direct exploration of influence or impact—either of socio-cultural contexts upon the texts, or vice versa', rather it is 'a consideration of selected dimensions of

[92] J'annine Jobling, *Fantastic Spiritualities: Monsters, Heroes, and the Contemporary Religious Imagination* (London: T&T Clark International, 2010), 5.

[93] Jobling, 8.

[94] See Joseph Campbell, *The Hero with a Thousand Faces*, 3rd ed. (Novato, CA: New World Library, 2008).

spirituality … within selected texts drawn from the fantasy literature field'.[95] Although Jobling remains open to the idea that real-life spiritualities may draw from fantasy fictions, she does not choose to make such a thesis statement. Thus, her approach is aligned with that of Saunders, as described above. Jobling's selected dimensions include transformation of the self, metaphysics and transcendence, transforming worlds, and the good and the monstrous; her chosen fictions include the *Harry Potter* series, the *Earthsea* cycle, *His Dark Materials*, and *Buffy the Vampire Slayer*. In her conclusion, Jobling again broaches the thesis that she comes short of making: 'For those constructing their spiritualities outside of formal traditions, the model of the bricoleur can be applied, whereby one assembles from the brightest pieces available the narrative of one's life. This is a mode of mythopoesis. These texts, which as fantasy literature might also be deemed forms of mythopoesis, are some of the fragments which may enter into the bricolage.'[96] However, it is her subsequent sentence that presents a more apt conclusion to her actual argument: 'Literature, including fantasy literature, allows one to explore possibilities imaginatively, disclosing how things might be, or how we might be.'[97] Saunders and Jobling have analysed a relationship between religion and literature that could be described as revealing the correspondence in spirituality between speculative fiction and our nonfictional world; however, neither discuss how such correspondence is effective. One such thesis attempting this is that by Emily McAvan.

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[95] Jobling, *Fantastic Spiritualities: Monsters, Heroes, and the Contemporary Religious Imagination*, 20–21.

[96] Jobling, 202.

[97] Jobling, 202.

What Emily McAvan brings to her book, *The Postmodern Sacred: Popular Culture Spirituality in the Science Fiction, Fantasy and Urban Fantasy Genres*, that Saunders and Jobling do not, is her situatedness within culture, media, and gender studies.[98] In McAvan's thesis, fictions do not simply reflect reality; rather 'the symbolic, the virtual and the real have merged, irrevocably, into one'.[99] McAvan names her thesis 'the postmodern sacred': 'The postmodern sacred … consists of texts that are consumed in part for their spiritual content, for an experience of the transcendent ambivalently situated on the boundary of formal religious and spiritual traditions.'[100] McAvan continues:

> [T]he postmodern sacred is a paradoxical attempt at accessing spirituality, using the symbols contained in explicitly unreal texts to gain a second-hand experience of transcendence and belief. This second-hand experience displaces the need for belief or real-world practice into a textual world, requiring little of its consumers. While they seem to suggest a desire for a magical world outside of capitalism, the wonder produced by these texts, however, is only temporary; eventually the consumer must return again to purchase another text.[101]

McAvan draws from a multitude of texts to defend her theoretical model, loosely following a real/unreal binary to choose her texts, and selecting based on contemporary impact and degree of visibility in culture.[102] Examples of chosen texts include: *Harry Potter*, *Lord of the Rings*, *The Matrix*, *Buffy the Vampire Slayer*, and *Dead Like Me*. McAvan engages 'three of the most influential theories of

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[98] See also Emily McAvan, 'The Postmodern Sacred', *Journal of Religion and Popular Culture* 22, no. 1 (Spring 2010): 1–23.

[99] Emily McAvan, *The Postmodern Sacred: Popular Culture Spirituality in the Science Fiction, Fantasy and Urban Fantasy Genres* (Jefferson, North Carolina: McFarland & Company, 2012), 5.

[100] McAvan, 6.

[101] McAvan, 19.

[102] McAvan, 14–15.

postmodernity—Jean-François Lyotard's idea of the collapse of the meta-narrative, Jean Baudrillard's ideas about hyperreality and simulation, and Fredric Jameson's theory that postmodern art is a theory of pastiche'.[103] Such engagement in her study leads her to conclude that '[t]he postmodern religious culture finds itself somewhere between a fundamentalist belief in a singular God, a pagan belief in *everything*, and a modern skeptical disbelief in *anything*—three often incompatible belief systems'.[104] McAvan concludes her understanding of the effectiveness of consuming speculative fiction for religious nourishment thus: 'Searching for the transcendental, lost heroes, authenticity and meta-narratives, the postmodern sacred finds only fragments and traces of the transcendental, and the endless deferral of spiritual satisfaction to another episode, another show, another movie.'[105] Satisfaction, if it does come, does not last. Not only does McAvan draw connections between spirituality and the speculative fictions she studies, as do Saunders and Jobling, but she emphasises the utilisation of unreal texts for the lived-experiences of spirituality. McAvan acknowledges the consumeristic aspects of new age spirituality that requires consumers to constantly return for restocking. Furthermore, McAvan reveals the paradoxical nature of religious practice based upon blatantly unreal texts: 'The

[103] McAvan, 17. For further information about these theories, see Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge*, trans. Geoff Bennington and Brian Massumi, Theory and History of Literature 10 (Manchester: Manchester University Press, 1984); Jean Baudrillard, *Simulacra and Simulation*, trans. Sheila Faria Glaser (Ann Arbor, MI: University of Michigan, 1994); Fredric Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism*, Post-Contemporary Interventions (Durham, NC: Duke University Press, 1991).

[104] McAvan, *The Postmodern Sacred: Popular Culture Spirituality in the Science Fiction, Fantasy and Urban Fantasy Genres*, 156. Italics original.

[105] McAvan, 158.

postmodern sacred is … hyperreal, in that its representations seem more real than religious tradition itself.'[106]

The notion of hyper-reality brings us back to Cusack's and Kosnáč's *Fiction, Invention and Hyper-reality*. The religious movements discussed therein are intensifications of McAvan's postmodern sacred, as individual, personal spiritualities grow, attracting multiple people to the same spiritual practice and/or belief. Indeed, the groups and practices analysed within *Fiction, Invention and Hyper-reality* can be related back to ideas only theoretically discussed by Saunders, Jobling, and McAvan. Included in the book are analyses of, for example, spiritual groups based on J.R.R. Tolkien's Legendarium; Jediism and the Temple of the Jedi Order; Dudeism, based on *The Big Lebowski*; The Church of All Worlds, whose inspiration is drawn from Robert Heinlein's *Stranger in a Strange Land*; and real-life superheroes.

This section on the intersection of spirituality and speculative fictions explores three ways in which speculative fiction relates to spirituality and spiritual practices in the extra-textual world, including depicting corresponding spirituality (Saunders and Jobling), as content consumed for spiritual nourishment (McAven), and as the inspiration or foundational text (scripture) for spiritual/religious groups (Cusack and Kosnáč).

Conclusion

This chapter explored three broad methods for the interaction of literature and religion: biblical narrative, narrative theology, and spirituality and speculative

[106] McAvan, 24.

fiction. Now that we have explored the interaction of literature and religion, we move in the next chapter to a study of the interaction between literature and science.

Chapter 5

Literature and Science

Introduction

Biologist and creative writer Sanjay K. Nigam writes, 'Straddling the roles of physician-scientist and sometimes novelist, I cautiously argue that effective storytelling can get at complex truth'[1]—a truth he later calls 'fictional truth'.[2] Although Nigam's article is hopeful about the connections between storytelling and neuroscience, he admits that he is only offering 'a few thoughts' and 'lots of speculation'.[3] More qualified to speak on the intersection of the sciences and literature would be literary critic N. Katherine Hayles who holds postgraduate degrees in both chemistry and literature.[4] For Hayles, her publications on science and literature have been about advancing a method: 'When I first started work in literature and science, the only way to connect these methodologically were influence studies …. But I felt that was a very limited approach and could only account for a few instances. It certainly could not account for the phenomena that I thought I saw, parallels between fields that basically were not talking with each other.'[5]

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[1] Sanjay K. Nigam, 'The Storytelling Brain: Commentary on "On Social Attribution: Implications of Recent Cognitive Neuroscience Research for Race, Law, and Politics"', *Science and Engineering Ethics* 18, no. 3 (2012): 568, https://doi.org/10.1007/s11948-012-9378-3.

[2] Nigam, 570.

[3] Nigam, 570.

[4] Sherryl Vint, 'Embodied Texts, Embodied Subjects: An Overview of N. Katherine Hayles', *Science Fiction Film and Television* 1, no. 1 (2008): 115.

[5] Arthur Piper, 'How We Became Posthuman: Ten Years On: An Interview with N. Katherine Hayles', *Paragraph: A Journal of Modern Critical Theory* 33, no. 3 (2010): 319, https://doi.org/10.3366/E0264833410000933.

Scholarship has also been published bringing together science and poetry.[6] Such scholarship, sharing a vision with Hayles and Nigam, works against 'the two cultures' divide between the sciences and humanities.[7]

Although not immersed in the critical fields of science or literary theory, Ursula K. Le Guin, author of fantasy and science fiction, finds herself within 'a tradition of [science fiction] writer-critics concerned with the whys and hows of their particular mode of telling the truth'.[8] Le Guin's work contends that '[t]he function of art … is to find the truth, and express it as clearly and beautifully as possible'.[9] Thus, it is not just science that is concerned with truth, but art as well—including the art of science fiction. Furthermore, Le Guin argues that '[t]he science-fictioneer imitates the Creation':

> This kind of world-making is a thought-experiment, performed with the caution and in the controlled, receptive spirit of experiment. Scientist and science-fictioneer invent worlds in order to reflect and so to clarify, perhaps to glorify, the 'real world', the objective Creation. The more closely their work resembles and so illuminates the solidity, complexity, amazingness and coherence of the original, the happier they are.[10]

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[6] For example, see Robert Crawford, ed., *Contemporary Poetry and Contemporary Science* (Oxford: Oxford University Press, 2006); Tom McLeish, *The Poetry and Music of Science: Comparing Creativity in Science and Art* (Oxford: Oxford University Press, 2019).

[7] See C. P. Snow, *The Two Cultures and the Scientific Revolution* (Cambridge: Cambridge University Press, 1959).

[8] Susan Wood, 'Introduction', in *The Language of the Night: Essays on Fantasy and Science Fiction*, ed. Ursula K. Le Guin and Susan Wood, Revised ed. (London: The Women's Press Ltd, 1989), 6.

[9] Wood, 11.

[10] Ursula K. Le Guin, 'Do-It-Yourself Cosmology', in *The Language of the Night: Essays on Fantasy and Science Fiction*, ed. Ursula K. Le Guin and Susan Wood, Revised ed. (London: The Women's Press Ltd, 1989), 105.

In this way, '[s]cience fiction is not predictive; it is descriptive'.[11] In the theoretical view of Le Guin, science and science fiction align in their pursuit of reality. However, there is an important twist in Le Guin's thought when it comes to the science fiction novelist. In response to her own hypothetical question, 'If the authors wanted to speak clearly why didn't they write an essay, a documentary, a philosophical or sociological or psychological study?', Le Guin describes what she believes to be the focus of the science fiction novel:

> Because they are … novelists. Real novelists. They write science fiction … because what they have to say is best said using the tools of science fiction, and the craftsman knows his tools. And still, they are novelists, because while using the great range of imagery available to science fiction, they say what it is they have to say through a character—not a mouthpiece, but a fully realized creation. The character is primary …. The writers' interest is no longer really in the gadget, or the size of the universe, or the laws of robotics, or the destiny of social classes, or anything describable in quantitative, or mechanical, or objective terms. They are not interested in what things do, but in how things are. Their subject is the subject, that which cannot be other than subject: ourselves. Human beings.[12]

This long quote gives clarity to the type of thought-experiments that Le Guin does in her fictions such as *The Left Hand of Darkness*; Le Guin is interested in the psychological or sociological impacts of environments and events upon her characters. Atwood similarly considers all fiction experimental.[13] What Nigam, Hayles, and Le Guin suggest, here, is a shared pursuit of knowledge, and the

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[11] Ursula K. Le Guin, 'Introduction to The Left Hand of Darkness', in *The Language of the Night: Essays on Fantasy and Science Fiction*, ed. Ursula K. Le Guin and Susan Wood, Revised ed. (London: The Women's Press Ltd, 1989), 131.

[12] Ursula K. Le Guin, 'Science Fiction and Mrs Brown', in *The Language of the Night: Essays on Fantasy and Science Fiction*, ed. Susan Wood and Ursula K. Le Guin, Revised ed. (London: The Women's Press Ltd, 1989), 92–93.

[13] See Margaret Atwood, 'Introduction to Ground Works Edited by Christian Bök', in *Moving Targets: Writing with Intent: 1982-2004* (Toronto: Anansi, 2004), 294.

knowledge often gained at the intersection of science and literature is that pertaining to human beings.

This is the final chapter considering the use of literary theory within the science-religion-and-literature field. Just as we explored the interaction of literature and religion in the last chapter, we will explore literature and science in this chapter. Apparent in the current chapter will be the plurality of science, such that one would more appropriately use the term 'sciences' than 'science'. Indeed, the sciences discussed within this chapter will span neuroscience, evolutionary theory, and cybernetics. Closely connected with these sciences are technologies, such as Donna Haraway's use of the cyborg image, which we will explore. This chapter will focus on three broad methods for interaction between literature and science: science as metaphor; posthumanisms; and intersections of biology and literature, with specific references to neuroscience and evolutionary literary criticism.

Science as Metaphor

In her chapter for a book on the historical, philosophical, ethical, and theological perspectives on the Human Genome Project, historian and philosopher of science Evelyn Fox Keller provides an historical discussion of the gene concept—of 'metaphors relating genes and organisms'.[14] Keller reminds her audience of the role our language plays in scientific concepts: 'We might like to think the claim that "organisms control their genes" is closer to the truth of the matter than the assertion

[14] Evelyn Fox Keller, 'Is There an Organism in This Text?', in *Controlling Our Destinies: Historical, Philosophical, Ethical, and Theological Perspectives on the Human Genome Project*, ed. Phillip R. Sloan (Notre Dame, IN: University of Notre Dame Press, 2000), 279.

that “genes control organisms,” and that this shift in discourse reflects the natural progress of science, but we must remember that both are, as they say, “just” ways of talking.’[15] For Keller, this means that it is important to understand how scientific language, experimental practice, and social expectations have worked and continue to work in concert and mutual reinforcement. The title of Keller’s contribution, ‘Is There an Organism in This Text?’, is a play on Stanley Fish’s famous question, ‘Is there a text in this class?’.[16] Fish is the self-proclaimed inventor of reader-response theory; his concept of interpretive communities ‘radically revises interpretive theory by locating meaning not in texts but in readers, not in individual response but in the protocols of communities’.[17] The homage to Fish, with his placement of importance on communities of readers, reveals Keller’s intent of exposing the importance of human language in the context of science. One such element of human language that is significant at the intersection of science and literature is that of metaphor.

Perhaps one of the more well-known links between metaphor and science is that of Donna Haraway’s cyborg manifesto. Before turning to the manifesto itself, it will be helpful to consider Haraway’s use of metaphor. In a published, book-length interview with a former student, Haraway extensively and explicitly describes her use of science as metaphor: ‘I have always read biology in a double way—as about the way the world works biologically, but also about the way the world works

[15] Keller, 278–79.

[16] See Stanley Fish, *Is There a Text in This Class? The Authority of Interpretive Communities* (Cambridge, Massachusetts: Harvard University Press, 1980).

[17] Vincent B. Leitch, ed., ‘Stanley E. Fish’, in *The Norton Anthology of Theory and Criticism*, 2nd ed. (New York: W. W. Norton & Company, 2010), 1970.

metaphorically. It's the join between the figurative and the factual that I love.'[18] Metaphor is woven throughout Haraway's work: 'Since I experience language as an intensely physical process, I cannot *not* think through metaphor. It isn't as though I make a choice to work with and through metaphor, it's that I experience myself inside these constantly swerving, intensely physical processes of semiosis.'[19] Haraway claims that people can misread her work if they miss her metaphors dealing with complex wholes and complex processes. Describing both her work and her metaphors, Haraway explains, 'All of my metaphors imply some kind of synergetic action at a level of complexity that is not approached through its smallest parts. So they are all metaphors about complexity. My work has always been about what counts as nature.'[20] Haraway sees her metaphors as combatting reductionism. For Haraway, this way of reading biology metaphorically comes from the sacramentalism of her Catholic upbringing, and she explains her thinking thus: 'I think of the intensely physical entities of biological phenomena, and then from them I get these large narratives, these cosmological histories if you will.'[21] Notice how Haraway moves from physical entities, to metaphors, to large narratives, to cosmological histories; in doing so, she links science, metaphor, myth, and religion. This is significant for understanding the language she uses in her cyborgian works.

Although Haraway deals with biological engineering in a book entitled *Modest_Witness@Second_Millennium.FemaleMan©_Meets_OncoMouse™*, her

[18] Thyrza Nichols Goodeve, *How Like a Leaf: A Conversation with Donna J. Haraway* (New York: Routledge, 2000), 24.

[19] Goodeve, 86. Italics original.

[20] Goodeve, 51.

[21] Goodeve, 24.

1985 article, 'A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s', is more well-known and has been reprinted multiple times.[22] Although cyborgs may often be associated with a technological future or with science fiction literature, Haraway's article suggests that cyborgs are already among us, and beginning her essay with the words '[a]n ironic dream of a common language for women in the integrated circuit' suggests the nature of these cyborgs.[23] Haraway defines the cyborg as 'a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction. … [The cyborg] changes what counts as women's experience in the late twentieth century'.[24] According to Haraway, 'we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs'.[25] Denying the neat boundaries of Western science and politics—'the tradition of racist, male-dominant capitalism; the tradition of progress; the tradition of appropriation of nature as resource for the production of culture; the tradition of reproduction of the self from the reflections of the other'[26]—Haraway claims that her essay 'is an argument for *pleasure* in the confusion

[22] For original publication, see Donna Haraway, 'Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s', *Socialist Review* 80 (1985): 65–108. My citations will be from the reprint Donna Haraway, 'A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s', *Australian Feminist Studies* 2, no. 4 (1987): 1–42, https://doi.org/10.1080/08164649.1987.9961538. For other reprints, see Donna Haraway, 'A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century', in *Simians, Cyborgs, and Women: The Reinvention of Nature* (London: Free Association Books, 1991), 149–81; Donna Haraway, 'A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s', in *The Norton Anthology of Theory and Criticism*, ed. Vincent B. Leitch, 2nd ed. (New York: W. W. Norton & Company, 2010), 2190–2220.

[23] Haraway, 'A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s', 1987, 1.

[24] Haraway, 1–2.

[25] Haraway, 2.

[26] Haraway, 2.

of boundaries and for *responsibility* in their construction'.[27] The three boundaries that Haraway claims have broken down include those between human and animal, organism and machine, and physical and non-physical.[28] Haraway claims that such blurred boundaries already exists for her intended audience, so she offers her 'cyborg myth', which 'is about transgressed boundaries, potent fusions, and dangerous possibilities which progressive people might explore as one part of needed political work' in order to bring about a world 'in which people are not afraid of their joint kinship with animal and machines, not afraid of permanently partial identities and contradictory standpoints'.[29] Haraway refers to the cyborg as a myth; however, it is a myth that can do political work—especially feminist work: 'Perhaps, ironically, we can learn from our fusions with animal and machines how not to be Man, the embodiment of Western logos.'[30] Haraway suggests that a prime example of cyborg identity is women of colour, 'a potent subjectivity synthesized from fusions of outsider identities'; the theorists for cyborgs are those exploring what it means to be embodied in high-tech worlds; and cyborg writing is 'about the Fall, the imagination of a once-upon-a-time wholeness before language, before writing, before Man' and 'about the power to survive, not on the basis of original innocence, but on the basis of seizing the tools to mark the world that marked them as other.'[31] The tools to seize 'are often stories, retold stories, versions that reverse and displace the hierarchical dualisms of naturalized identities'; '[w]riting is pre-eminently the technology of

[27] Haraway, 3. Italics original.
[28] Haraway, 4–6.
[29] Haraway, 7–8.
[30] Haraway, 28.
[31] Haraway, 28–30.

cyborgs' in 'the struggle for language and the struggle against perfect communication, against the one code that translates all meaning perfectly, the central dogma of phallogocentrism'.[32] Although Haraway began by proclaiming the (ironic) goal of a common language for feminists, she ends by claiming that she has articulated 'a dream not of a common language, but of a powerful infidel heteroglossia'.[33]

Haraway's manifesto for cyborgs is a well-known example of science, or in this case the technology developed from science, as metaphor. In her article, Haraway insists that the image, or metaphor or myth, of the cyborg can help her to express two things: first, that universal theories—such as the Christian metanarrative or a reductionistic theory in science—miss most of reality; and second, that in order to take responsibility for the connections between the social and the scientific or technological, we must renounce anti-science metaphysics and stances that demonise technology, as well as allow for the deconstruction of dualisms so that we can be connected with what was once 'other'.[34] Beyond using science as a metaphor, Haraway refers to specific feminist science fiction authors as enacting the cyborg stance both within their fictional texts and in the act of writing and publishing such texts. Although Haraway is interested in cultural and political studies, she also takes science and literature seriously into her work.

Appeal to Haraway and her work would likely contribute to a critical theory approach in science-religion-and-literature, as she is regularly referred to as a critical

[32] Haraway, 30–31.
[33] Haraway, 37.
[34] Haraway, 37.

theorist.[35] Furthermore, her approach seems similar to that of Stephen Prickett, explored in Chapter 2. Our next example of intersection between science and literature is the concept of posthumanism.

Posthumanism

Political theorist William Connolly considers posthumanism—along with immanent naturalism, antihumanism, speculative realism, complexity theory, object-oriented metaphysics, and philosophies of becoming—a movement under the categorical name 'new materialism'.[36] According to Connolly, these new materialist movements share certain affinities: challenges to classical ontological dualisms between mind/body and self/world; a notion of vitality in energy-matter complexes; affirmation of the dynamic, temporal, and process character of systems and things; a de-centring of the human subject such that agency can be identified beyond humanity; an ethic of cultivation that acknowledges our entanglements with the nonhuman; a sense of pragmatism that allows for problem-solving across varying and interacting scales; willingness to engage in experimental action; identification of shifting elements of ontological uncertainty and creativity; supplementation of reason and knowledge with techno-artistic tactics; and an attention to planetary processes.[37] Connolly has reservations about using the term *posthumanism*, not only because it is one of the more popularly known representatives of the new

[35] For a discussion of critical theory and my use of the term, see Chapter 2.

[36] William E. Connolly, 'The "New Materialism" and the Fragility of Things', *Millennium: Journal of International Studies* 41, no. 3 (June 2013): 399, https://doi.org/10.1177/0305829813486849.

[37] Connolly, 399–402.

materialisms, and thus might mask agendas of the other lesser known movements, but also because it easily invites misrepresentation. It is, therefore, important to consider various understandings of posthumanism before examining the work of an influential posthumanism theorist, N. Katherine Hayles.

In his book, *What is Posthumanism?*, Carey Wolfe provides a helpful historical study of the term. Posthuman theories can be traced back to the Macy conferences on cybernetics from 1946 to 1953 and the invention of systems theory.[38] The new theoretical model that emerged 'removed the human and *Homo sapiens* from any particularly privileged position in relation to matters of meaning, information, and cognition'.[39] The roots of posthumanism in the humanities and social sciences can be traced back to the 1960s through theorists such as Michel Foucault, with the term itself appearing in critical discourse during the mid-1990s.[40] However, the term has broadened in meaning, and it is, therefore, now important to distinguish between *posthumanism* and *transhumanism* (Wolfe calls the latter '"bad" posthumanism').[41] In Wolfe's understanding, transhumanism should be seen 'as an *intensification* of humanism'.[42] In contrast, posthumanism is what comes both before and after humanism; it both acknowledges the 'prosthetic coevolution of the human animal with the technicity of tools and external archival mechanisms (such as language and culture)' and

[38] For transcripts from the Macy conferences and an account of their impact, see Claus Pias, ed., *Cybernetics: The Macy Conferences 1946-1953: The Complete Transactions* (Chicago: University of Chicago Press, 2016).

[39] Cary Wolfe, *What Is Posthumanism?*, Posthumanities 8 (Minneapolis: University of Minnesota Press, 2010), xii.

[40] Wolfe, 1.

[41] Wolfe, xvii.

[42] Wolfe, xv. Italics original.

> names a historical moment in which the decentering of the human by its imbrication in technical, medical, informatics, and economic networks is increasingly impossible to ignore, a historical development that points toward the necessity of new theoretical paradigms (but also thrusts them on us), a new mode of thought that comes after the cultural repressions and fantasies, the philosophical protocols and evasions, of humanism.[43]

Posthumanism in this sense is not referring just to the human body or the species *Homo sapiens*; it also refers to a philosophical discourse that follows the age of humanism (as well as comes before, according to Wolfe). Oxford's *Dictionary of Critical Theory* primarily focuses on this departure from the tenets of humanism; under posthumanism the humanist assumption that humans are knowable and reasonable is false, and the dividing line between human and nonhuman is declared to be difficult to delineate and permeable.[44]

There is a significant connection between posthumanism and science fiction. In his chapter on posthumanism in *The Oxford Handbook of Science Fiction*, Colin Milburn recounts the myriad ways science fiction has speculated on the posthuman condition. Milburn identifies three main senses in which the genre has considered the posthuman: biological, technological, and cultural or epistemic. The biological sense focuses 'on the evolutionary future of *Homo sapiens* and the extent to which human physiology might dramatically alter over time, or even in symbiogenesis with other species'; the technological sense focuses 'on the synthetic, engineered successors of humanity or the idea of humans and machines linked ever more closely in the circuits of technoculture'; and the cultural or epistemic sense discovers 'that

[43] Wolfe, xv-xvi.

[44] Ian Buchanan, ed., 'Posthumanism', in *A Dictionary of Critical Theory* (Oxford: Oxford University Press, 2016).

"human nature" is a tenuous social construct open to modification and revision'.[45] Although Milburn mentions transhumanism, he does not seek to differentiate it from posthumanism, and his analysis of posthumanism tends to embody Wolfe's description of transhumanism as intensified humanism, due to his chosen examples of perfecting human biology and achieving immortality by remaking 'old myths into technological realities'.[46] Furthermore, there exists forms of the movement that have cultural and epistemic implications, but yet remain ontologically grounded in matter—as Connolly's umbrella-term 'new materialisms' denotes. N. Katherine Hayles, whose book *How We Became Posthuman* is highly influential in the field, will serve as an example of the intersection of literature and science at the site of posthumanism.[47]

N. Katherine Hayles's research into posthumanism stems from interest in the connection between the mind and body, leading her through the field of cybernetics, and taking the shape of three interrelated stories in her thought: how information lost its body, how the cyborg was created as a technological artefact and cultural icon, and how the human is giving way to the posthuman.[48] For Hayles, in her book *How We Became Posthuman*, the question is not *will* we become posthuman, for we

[45] Colin Milburn, 'Posthumanism', in *The Oxford Handbook of Science Fiction*, ed. Rob Latham (Oxford: Oxford University Press, 2014), 524.

[46] Milburn, 531.

[47] Other notable posthumanists include Donna Haraway, whose cyborg myth we have already explored in this chapter, and Karan Barad, whose work with quantum mechanics articulates posthumanism in an ontic sense as well as an epistemic one. See Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, NC: Duke University Press, 2007).

[48] N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999), 2.

already are posthuman; the question is what *kind* of posthumans will we be.[49] Hayles explains that the concept of the posthuman 'is already so complex that it involves a range of cultural and technical sites, including nanotechnology, microbiology, virtual reality, artificial life, neurophysiology, artificial intelligence, and cognitive science'.[50] While Hayles does not define the posthuman, she identifies some aspects of posthumanism as follows: first, 'the posthuman view privileges informational pattern over material instantiation'; second, 'the posthuman considers consciousness … as an evolutionary upstart trying to claim that it is the whole show when in actuality it is only a minor sideshow'; third, 'the posthuman view thinks of the body as the original prosthesis we all learn to manipulate'; and fourth, 'the posthuman view configures human being so that it can be seamlessly articulated with intelligent machines'.[51] Unlike Donna Haraway who describes the posthuman cyborg with a celebratory tone,[52] Hayles expresses concern regarding some conceptions of the posthuman. For example, she warns against 'a culture inhabited by posthumans who regard their bodies as fashion accessories'; however, she admits that her 'dream is a version of the posthuman that embraces the possibilities of information technologies without being seduced by fantasies of unlimited power and disembodied immortality, that recognizes and celebrates finitude as a condition of human being, and that understands human life as embedded in a material world of great

[49] Hayles, 246.
[50] Hayles, 247.
[51] Hayles, 2–3.
[52] Haraway speaks of 'pleasure' in the confusion of boundaries found in the cyborg myth; she describes the myth as a 'dream' and the cyborg as being part of a 'spiral dance' akin to a goddess. See Haraway, 'A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s', 1987, 37.

complexity, one on which we depend for our continued survival'.[53] Indeed, a sense of the importance of materiality is central to Hayles's concerns, and she makes such concerns explicit: 'Information, like humanity, cannot exist apart from the embodiment that brings it into being as a material entity in the world; and embodiment is always instantiated, local, and specific. Embodiment can be destroyed, but it cannot be replicated. Once the specific form constituting it is gone, no amount of massaging data will bring it back.'[54] Hayles's solution to the temptation of shifting away from an embodied understanding of information is to show 'how concepts important to the posthuman—materiality, information, mutation, and hyperreality—can be understood as synthetic terms emerging from the dialects between presence/absence and pattern/randomness'[55]—such that such dualities may eventually be rendered obsolete.[56] Hayles's ultimate hope is that posthumanism will neither collapse back into liberal humanism, nor be construed as anti-human; rather, she believes that once '[l]ocated within the dialectic of pattern/randomness and grounded in embodied actuality rather than disembodied information, the posthuman offers resources for rethinking the articulation of humans with intelligent machines'.[57] What Hayles offers her reader is a vision of the posthuman 'that will be conducive to the long-range survival of humans and of other life-forms, biological and artificial, with whom we share the planet and ourselves'.[58]

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[53] Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*, 5.

[54] Hayles, 49.

[55] Hayles, 250.

[56] Hayles, 285.

[57] Hayles, 287.

[58] Hayles, 291.

In an interview given ten years following the publication of *How We Became Posthuman*, Hayles spoke of her dual interest in science and literature. She claims that her books leading up to that point had been 'looking for ways to advance a methodology' that 'stemmed from [her] belief that there are uncanny similarities between what literature is doing at a given time and what scientific fields are doing'—she saw 'parallels between [these] fields that basically were not talking with each other'.[59] Cybernetics provided a case study with which to articulate 'a methodology that not only can account for the parallels but, equally important, can account for the very significant differences that emerge in a field like literary studies versus some scientific field'—'a methodology that would be flexible enough to … account for the parallels, but also say: "These [shared] underlying questions [of cultural concern] are worked out in very different ways and very different answers are found to be satisfactory in different fields."'[60] Hayles also believes that 'the constructive role that literature can play is much misunderstood' and '[s]cientists typically do not fully grasp that literature can be a powerful resource for thinking about what's really at stake in scientific endeavours'.[61] For example, Hayles mentions the work of Philip K. Dick—an author she uses extensively in *How We Became Posthuman*. Hayles explains thus:

> Dick saw more clearly—and I would even say more vividly—than the cyberneticians did what was really at stake in the cybernetic paradigm. He expressed it very powerfully, not only through visions of the future but also through expressions of affect, how people would *feel* about the cybernetic paradigm, what kinds of emotions and deep unconscious responses it would unleash. The idea that affective forces might be at work in the de-centering of the human subject is implicit

[59] Piper, 'How We Became Posthuman: Ten Years On: An Interview with N. Katherine Hayles', 319.

[60] Piper, 320.

[61] Piper, 320.

> in the cybernetic texts. And yet, because the cyberneticians were writing in the scientific tradition, they didn't deal directly with the affective consequences. That's how works like Dick's can serve as a resource to understand the full implications of a scientific paradigm.[62]

Indeed, Hayles struggles to find acknowledgement of the affect of scientists involved in cybernetic research. Literature, on the other hand, is shaped by different conventions, such that 'the literary texts range across a spectrum of issues that the scientific texts only fitfully illuminate, including the ethical and cultural implications of cybernetic technologies'.[63] In order to depict the methodological interaction that Hayles sees between literature and the sciences, *How We Became Posthuman* oscillates between historical, scientific texts from cyberneticians and literary texts that deal with cybernetics, using narrative to maintain the connection between the two fields of enquiry in articulating the posthuman as a 'technical-cultural concept'.[64] Linking back to the theoretical emphasis on embodiment discussed above, Hayles claims that 'narrative is a more *embodied* form of discourse than is analytically driven systems theory'.[65] Thus, it is narrative—'narratives about culture, narratives within culture, narratives about science, narratives within science'[66]—that underlies the unified questions that scientific and literary fields address.

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[62] Piper, 321. Italics original. Dick is perhaps most well-known for his book *Do Androids Dream of Electric Sheep?* which was later adapted into the movie *Blade Runner*. Both stories deal extensively with cybernetics and ask what it means to be human. See Philip K. Dick, *Do Androids Dream of Electric Sheep?*, new ed, SF Masterworks (London: Gollancz, 2007); Ridley Scott, dir., *Blade Runner (The Final Cut)* (Warner Bros, 2007). Another famous example of this is William Gibson's *Neuromancer*. As Hayles points out: 'In the *Neuromancer* trilogy … William Gibson's vision of cyberspace had a considerable effect on the development of three-dimensional virtual reality imaging software.' See Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*, 21.

[63] Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*, 21.

[64] Hayles, 22.

[65] Hayles, 22. Italics original.

[66] Hayles, 21–22.

The above sections on science as metaphor and posthumanism lend themselves to critical theory approaches. The next section, on biology and literature, will examine two examples using the concept of literary language or story as it relates to science.

Biology and Literature: The Brain and Evolution

There have been a variety of approaches that concern themselves with the concept of humans as storytelling beings. In the words of philosopher Alasdair MacIntyre: '[M]an [*sic*] is in his [sic] actions and practice, as well as in his [*sic*] fictions, essentially a story-telling animal.'[67] This definition of humankind has begun to be explored scientifically through the biological sciences, such as neuroscience and evolutionary theory. In this section, we will survey what the brain sciences (including neuroscience, neuropsychology, and cognitive science) and evolutionary theory have to say about narrative. In doing so, I bring together scholars that use the terms *narrative*, *story*, and *myth*. Herein, the terms *narrative* and *story* will be used interchangeably; however, the term *myth* will be used according to the definition given by critical theorist Northrop Frye: '[M]yth to me means, first of all, *mythos*, plot, narrative, or in general the sequential ordering of words'; however, 'certain stories seem to have a peculiar significance: they are the stories that tell a society what is important for it to know, whether about its gods, its history, its laws, or its class structure. These stories may be called myths in a secondary sense', such that they

[67] Alasdair MacIntyre, 'The Virtues, the Unity of a Human Life, and the Concept of a Tradition', in *Why Narrative? Readings in Narrative Theology*, ed. Stanley Hauerwas and L. Gregory Jones (Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989), 101.

are 'the opposite of "not really true": it means being charged with a special seriousness and importance.'[68] According to this definition, all myths are stories or narratives, but not all stories or narratives are myths. When I use the term *myth*, I will use it to refer to stories or narratives of particular importance to the self or society.[69]

Although sociobiology falls short of supplying a satisfactory, single, all-purpose explanation for human behaviour, it was the first important movement in modern evolutionary social science, leading toward the development of cognitive science and evolutionary psychology.[70] In his 1978 book, *On Human Nature*, sociobiologist E. O. Wilson states that humans are still largely ruled by myths, such as the three great mythologies: Marxism, traditional religion, and scientific materialism.[71] Such ruling is done through 'the principle of natural selection acting on the genetically evolving material structure of the human brain'.[72] Wilson is concerned with myth because of his interest in religion. Indeed, Wilson claims that '[t]he sociobiological explanation of faith in God leads to the crux of the role of mythology in modern life.'[73] This connection between religion and story has also been expressed more recently by evolutionary psychologist Jonathan Gottschall, who writes that '[r]eligion is the ultimate expression of story's dominion over our minds'.[74]

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[68] Frye, *The Great Code: The Bible and Literature*, 32–33.

[69] For fuller exploration, see Wright, 'In the Beginning: The Role of Myth in Relating Religion, Brain Science, and Mental Well-Being'.

[70] For a brief description of the relation between sociobiology, cognitive science, and evolutionary psychology, see James A. Van Slyke, *The Cognitive Science of Religion*, Ashgate Science and Religion Series (Farnham: Ashgate, 2011), 92–101.

[71] Edward O. Wilson, *On Human Nature* (London: Penguin Books, 1978), 190.

[72] Wilson, 192.

[73] Wilson, 190.

[74] Gottschall, *The Storytelling Animal: How Stories Make Us Human*, 119.

In 1998 psychiatrist Eugene d'Aquili and neuroscientist Andrew Newberg published an article in *Zygon* about the neuropsychological bases of religions, which was mainly about the neurobiology of religious experiences; however, the two scientists brought in the concept of myth, stating that 'human beings have no choice but to construct myths of personalized power sources to explain their world' and 'to orient themselves within … [their] universe'.[75] They link this with something they call the 'causal operator', which they describe as 'the anterior convexity of the frontal lobe, the inferior parietal lobule, and their reciprocal interconnection' that together organise any given 'strip of reality into what is subjectively perceived as causal sequences back to the initial terminus of that strip'.[76] This causal operator leads to myth formation, which, in turn, leads to the formation of religions. Newberg and d'Aquili expanded this article into a book under the title *Why God Won't Go Away: Brain Science and the Biology of Belief*, published in 2001. Once again, most of the book is an argument for the complexity of religious experiences in the brain, but they still bring in language and myth as they relate to religion. Newberg and d'Aquili argue that the creation and persistence of myths are due to causal and binary operators in the brain:[77]

> Any idea might trigger a myth if it can unify logic and intuition, and lead to a state of left-brain/right-brain agreement. In this state of whole-brain harmony, neurological uncertainties are powerfully alleviated as existential opposites are reconciled and the problem of cause is resolved. To the anxious mind, this resonant whole-brain agreement feels like a glimpse of ultimate truth. The mind seems to

[75] Eugene G. d'Aquili and Andrew B. Newberg, 'The Neuropsychological Basis of Religions, or Why God Won't Go Away', *Zygon* 33, no. 2 (1998): 191.

[76] d'Aquili and Newberg, 191.

[77] Andrew B. Newberg, Eugene G. d'Aquili, and Vince Rause, *Why God Won't Go Away: Brain Science and the Biology of Belief* (New York: Ballantine Publishing, 2001), 63–65.

> live this truth, not merely comprehend it, and it is this quality of visceral experience that turns ideas into myths.[78]

Keeping this description of the creation of myths, d'Aquili and Newberg include science as a myth, as well, saying that 'science is a type of mythology, a collection of explanatory stories that resolve the mysteries of existence and help us cope with the challenges of life'.[79] One may notice that d'Aquili and Newberg's explanation of the creation of myth remains highly speculative, depending upon cognitive science models to enhance their neuroscientific findings. In 2013, psychologist Edward Pace-Schott published an article on the dreaming brain, in which he reviews neurological studies on dreaming. According to Pace-Schott, the story-like structure of dreams is a feature of the dream experience itself, implying that 'story structure may also be the basic manner in which [the] brain organizes experience'.[80] Ultimately, Pace-Schott suggests that dreams 'represent a "hardwired" tendency to represent reality in the form of narrative—a "story-telling" instinct or module'.[81] Because cognitive science has dealt with story in much more depth than neuroscience, it will be beneficial to take a closer look at the relation between cognitive science and narratives.

In his editorial introduction to the book *Narrative Theory and the Cognitive Sciences*, David Herman claims that there are two general ways to think about the

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[78] Newberg, d'Aquili, and Rause, 73. This aligns with Claude Lévi-Strauss's theory of myth, which claims that 'the purpose of myth is to provide a logical model capable of overcoming a contradiction.' See Claude Lévi-Strauss, 'The Structural Study of Myth', *The Journal of American Folklore* 68, no. 270 (1955): 443.

[79] Newberg, d'Aquili, and Rause, *Why God Won't Go Away: Brain Science and the Biology of Belief*, 170.

[80] Edward F. Pace-Schott, 'Dreaming as a Story-Telling Instinct', *Frontiers in Psychology* 4 (2013): 2, https://doi.org/10.3389/fpsyg.2013.00159.

[81] Pace-Schott, 1.

intersection of stories and cognitive science: making sense of stories and stories as sense making.[82] One example of using cognitive science and neuroscience to explain making sense of stories is a 2004 review article by psychologist Raymond Mar titled 'The Neuropsychology of Narrative: Story Comprehension, Story Production and their Interrelation'. Mar has two aims in his article: first, an attempt to integrate cognitive science models with emerging neuroscience findings; and second, an examination of the possible interrelation between story comprehension and story production. Mar concludes that the following five brain regions, listed along with their relevant functions within cognitive science models, are involved in narrative processing: medial prefrontal cortex (ordering and selection process; theory of mind); lateral prefrontal cortex (ordering of events; working-memory process; goal-based functions); temporoparietal region (event-ordering; attribution of mental states); anterior temporal region, including temporal poles (theory of mind; linking of sentences and propositions); and posterior cingulate cortex (simulation of autonoetic awareness).[83] Mar admits that '[c]urrent knowledge of the brain and its functions does not yet approach the specificity at which most cognitive models are described';[84] however, he maintains that 'each approach has something to offer the other, and a mutually beneficial union is certainly not out of the question'.[85] In achieving such a goal, Mar recommends further research into the relation between

[82] David Herman, 'Introduction', in *Narrative Theory and the Cognitive Sciences*, ed. David Herman (Stanford, CA: CSLI Publications, 2003), 12–14.

[83] Raymond A. Mar, 'The Neuropsychology of Narrative: Story Comprehension, Story Production and Their Interrelation', *Neuropsychologia* 42 (2004): 1427–29, https://doi.org/10.1016/j.neuropsychologia.2003.12.016.

[84] Mar, 1415.

[85] Mar, 1430.

narratives and neuroanatomy, specifically via neuroimaging.[86] Other examples of making sense of stories would include the construction and understanding of fictional minds[87] and storyworlds.[88]

An example of using stories as sense making tools can be found in the relation between story and mental health. In a chapter on narrative construction, cognitive processing, and health, Kitty Klein seeks to address how people use autobiographical stories to understand traumatic or stressful events in their lives and how this understanding reflects psychological treatment progress or can be used as an intervention to affect health.[89] Klein explains that traumatic events are difficult or impossible to integrate into one's life story because they violate people's expectations and are more disorganised, incoherent, incomplete, and less vivid compared to autobiographical memories of less stressful events.[90] As a result, traumatic episodes are simultaneously difficult to access in their entirety and are hyperaccessible, meaning that they are easily called into consciousness involuntarily and reinstate the emotional and cognitive aspects of the traumatic experience.[91] Therefore, recovery from a traumatic event is aided by organising and streamlining

[86] Mar, 1430.

[87] For examples, see Uri Margolin, 'Cognitive Science, the Thinking Mind, and Literary Narrative', in *Narrative Theory and the Cognitive Sciences*, ed. David Herman (Stanford, CA: CSLI Publications, 2003), 271–94; Alan Palmer, 'The Mind Beyond the Skin', in *Narrative Theory and the Cognitive Sciences*, ed. David Herman (Stanford, CA: CSLI Publications, 2003), 322–48.

[88] For examples, see Jan Alber, 'Impossible Storyworlds—and What to Do with Them', *StoryWorlds: A Journal of Narrative Studies* 1 (2009): 79–96, https://doi.org/10.1353/stw.0.0008; Marie-Laure Ryan, 'Cognitive Maps and the Construction of Narrative Space', in *Narrative Theory and the Cognitive Sciences*, ed. David Herman (Stanford, CA: CSLI Publications, 2003), 214–42.

[89] Kitty Klein, 'Narrative Construction, Cognitive Processing, and Health', in *Narrative Theory and the Cognitive Sciences*, ed. David Herman (Stanford, CA: CSLI Publications, 2003), 57.

[90] Klein, 63.

[91] Klein, 63–64.

the traumatic memory in order to integrate it into one's life story.[92] Klein also reports experimental findings on the benefits of expressive writing or talking, which include physical health, psychological wellbeing, and cognitive function. Specific examples of such benefits include reductions in physician visits, reduced blood pressure, decrease in grief, improvements in school marks, and working memory improvements.[93] The relation between story and mental wellbeing is widely acknowledged, to which the counselling approaches of narrative therapy and bibliotherapy attest.[94] Relevant life story genres may include trauma narrative, scriptotherapy, and self-help narrative.[95] Jungian psychologists use fairy tales and myths in the counselling room, and there are instances of therapists using the hero's journey from Joseph Campbell's *The Hero with a Thousand Faces* as a counselling aid.[96] Explaining the link between life story and myth, evolutionary psychologist Jonathan Gottschall writes, 'A life story is a "personal myth" about who we are deep down—where we come from, how we got this way, and what it all means. Our life stories are who we are. They are our identity.

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[92] Klein, 63.

[93] Klein, 69–70.

[94] For information on narrative therapy, see Linda Mills, 'Narrative Therapy', in *Routledge Encyclopedia of Narrative Theory*, ed. David Herman, Manfred Jahn, and Marie-Laure Ryan (London: Routledge, 2010); Julia Vassilieva, *Narrative Psychology: Identity, Transformation and Ethics*, eBook (London: Palgrave Macmillan, 2016). For information on bibliotherapy, see Susanne Long, 'Bibliotherapy', in *Encyclopedia of Child Behavior and Development*, ed. Sam Goldstein and Jack A. Naglieri (New York: Springer, 2011).

[95] For descriptions of various life story genres, see Sidonie Smith and Julia Watson, *Reading Autobiography: A Guide for Interpreting Life Narratives*, 2nd ed (Minneapolis: University of Minnesota Press, 2010).

[96] For examples of Jungian psychology, see Peter Kenney, 'Proceedings of the Centre for the Study of Theology and Health: Story, Storytelling and Meaning', *Chrism* 54, no. 1 (2017): 23–25; Monika Renz, *Hope and Grace: Spiritual Experiences in Severe Distress, Illness and Dying* (London: Jessica Kingsley Publishers, 2016). For example of Jung on archetypes and the unconscious, see C. G. Jung, *The Archetypes and the Collective Unconscious* (London: Routledge & Kegan Paul, 1959). For use of Campbell's hero's journey in counselling, see Gerard Lawson, 'The Hero's Journey as a Developmental Metaphor in Counseling', *Journal of Humanistic Counseling, Education and Development* 44, no. 2 (2005): 134–44. Campbell's hero's journey is based upon Jungian archetypes. See Campbell, *The Hero with a Thousand Faces*.

A life story is not, however, an objective account. A life story is a carefully shaped narrative that is replete with strategic forgetting and skilfully spun meanings.'[97] Gottschall's comment on the shaping of life narrative reminds us that stories not only reflect how we make sense of our world, but also serve as a means to alter that sense of our world. It is the altering that is often of interest to therapeutic psychologists.

Having looked at the relation between brain science (in the form of neuroscience and cognitive science) and narrative, we now turn to the intersection of literature and evolution. H. Porter Abbott challenges our ability to package evolution by natural selection in a narrative form without serious distortion. Abbott explains that 'it is not evolution *per se* that resists narrative understanding but evolution by natural selection', for what Darwin proposed was 'a version of evolution that was, quite literally, impossible to narrativize *at the level of species*'.[98] However, as Porter correctly points out, this has repeatedly been done—including by Darwin, himself. According to Gillian Beer, '[r]eading *The Origin [of Species]* is an act which involves you in a narrative experience'.[99] Beer notes the 'imaginative consequences for science, literature, society and feeling' of *The Origin*,[100] and she emphasises the two-way traffic between nineteenth-century scientific writing and literary, historical, and philosophical writing: 'Because of the shared discourse not only *ideas* but metaphors, myths, and narrative patterns could move rapidly and freely to and fro

[97] Gottschall, *The Storytelling Animal: How Stories Make Us Human*, 161.

[98] H. Porter Abbott, 'Unnarratable Knowledge: The Difficulty of Understanding Evolution by Natural Selection', in *Narrative Theory and the Cognitive Sciences*, ed. David Herman (Stanford, CA: CSLI Publications, 2003), 154. Italics original.

[99] Gillian Beer, *Darwin's Plots: Evolutionary Narratives in Darwin, George Eliot and Nineteenth-Century Fiction* (London: Ark Paperbacks, 1983), 5.

[100] Beer, 4.

between scientists and non-scientists: though not without frequent creative misprision.'[101] Beyond a study of the shared discourse between Darwin's scientific writings and literary works engaging with his theory of evolution by natural selection, the relation between evolutionary theory and literary criticism has birthed the field of evolutionary literary theory (also known as literary Darwinism or evocriticism).

Literary Darwinist Joseph Carroll champions a vision of the future of literary study in which 'the evolutionary human sciences fundamentally transform and subsume all literary study'.[102] Considering literary Darwinism, Carroll claims the following:

> No other currently active theory lodges itself in a biological view of the human mind. No other theory thus makes it possible to integrate literary study with the rapidly developing body of knowledge from evolutionary psychology, paleoanthropology, primatology, behavioral ecology, comparative ethology, cognitive and affective neuroscience, behavioral genetics, and personality psychology …. Only the Darwinist understanding of literature offers the prospect for a cumulative development of literary research consistent with a broad range of scientific knowledge.[103]

Carroll has been seeking and, then, articulating his chosen literary theory since the late 1980s, as a reaction against poststructuralism.[104] The first fruit of his effort to integrate evolutionary social science with literary theory was his comprehensive book on the subject *Evolution and Literary Theory*, originally published in 1995. Opening this text, Carroll asserts: 'I argue for the view that knowledge is a biological phenomenon, that literature is a form of knowledge, and that literature is thus itself

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[101] Beer, 7. Italics original.

[102] Joseph Carroll, 'The Truth about Fiction: Biological Reality and Imaginary Lives', *Style* 46, no. 2 (2012): 129.

[103] Carroll, 129.

[104] Joseph Carroll, 'Teaching Literary Darwinism', *Style* 47, no. 2 (2013): 206.

a biological phenomenon.'[105] Carroll supports those general arguments by constructing a critical system that integrates evolutionary theory with components of traditional literary theory and by using that critical system to analyse and oppose poststructuralist theories that he perceived dominating literary studies. Aware of the incompleteness of the evolutionary model of human nature, Carroll explains that such lack could be ameliorated by taking 'adequate account of the experience that forms the subject matter of the humanities'.[106] Carroll ascribes to the school of humanist evolutionary psychology, in which imagination is considered 'functionally integral to the specifically human way of coping with the world'.[107] Humans, in this school of thought, 'are the only species that lives by ideas, or more precisely, by emotionally charged imaginative constructs like religion and ideologies'.[108] According to Carroll, '[u]nless we register the crucial way in which imagination characterizes specifically human forms of experience, we can make no convincing claim that we have understood human nature'.[109] Such a deficiency of understanding is represented by narrow-school evolutionary psychology, in which most features of civilisation are considered evolutionary by-products, and broad-school evolutionary psychology, which includes general intelligence (but not imagination) in its model of human nature. Humanist evolutionary psychology can provide a comprehensive evolutionary understanding of human experience by integrating human life history

[105] Joseph Carroll, *Evolution and Literary Theory* (Columbia, MI: University of Missouri Press, 1995), 1.

[106] Carroll, 'The Truth about Fiction: Biological Reality and Imaginary Lives', 130.

[107] Carroll, 132.

[108] Carroll, 132.

[109] Carroll, 133.

theory, personality psychology, and gene-culture co-evolution.[110] Carroll also argues that the proper subject of literary commentary is meaning, and that 'meaning arises from an interplay of perspectives among characters, authors, and readers';[111] and that the main categories of human life history (survival, growing up, love and sex, family life, life within a social group, relations between social groups, and the life of the mind) are also the main themes of fiction.[112] Ultimately, Carroll not only champions such a comprehensive synthesis in understanding human nature, but he is convinced of its inevitability, claiming that 'the methodological barriers separating science and the humanities are residual artifacts of a dying dualist metaphysics'[113] and that '[b]arring nuclear or environmental holocaust, the long-term trend moves unmistakably toward the integration of knowledge about human beings within an encompassing evolutionary framework'.[114]

Evolutionary literary theory is especially pertinent to this thesis, as it has already been applied to one of the books in the case study trilogy of Part Three, *The Year of the Flood*. In his article, 'Secular Apocalypses: Darwinian Criticism and Atwoodian Floods', Andrew Hoogheem brings Brian Boyd's *On the Origin of Stories: Evolution, Cognition, and Fiction* and Atwood's *The Year of the Flood*, released within weeks of each other in 2009, into conversation.[115] Hoogheem claims to facilitate this conversation in an effort to discuss evocriticism's (Hoogheem's term of choice for

[110] Carroll, 136.
[111] Carroll, 138.
[112] Carroll, 141.
[113] Carroll, 148.
[114] Carroll, 'Teaching Literary Darwinism', 219.
[115] Andrew Hoogheem, 'Secular Apocalypses: Darwinian Criticism and Atwoodian Floods', *Mosaic: A Journal for the Interdisciplinary Study of Literature* 45, no. 2 (June 2012): 56.

evolutionary literary theory) strengths and weaknesses, for, as he points out, 'the success or failure of evocriticism will depend on the extent to which it opens up substantial new avenues of inquiry or leads to novel insights, unreachable by other means, into a broad array of literary texts'.[116] Hoogheem notes the similar questions concerning the nature and function of religion in Boyd's and Atwood's texts, and so pays particular attention to these questions. According to Hoogheem's reading of Boyd, the evocritic places religion within the category of 'seemingly superfluous but ultimately advantageous traits'.[117] Hoogheem uses both Boyd's and Carroll's evocritical strategies to approach *The Year of the Flood*; however, he rightfully notes that, because both strategies are largely concerned with discerning authorial motives and Atwood has already written extensively on her motives, his approach must differ from Boyd's and Carroll's—hence Hoogheem's focus on how Atwood's text aligns with or deviates from an evocritical paradigm. Hoogheem concludes that indeed *The Year of the Flood* aligns with evocriticism in that 'the difference between failure and flourishing in Atwood's post-apocalyptic landscape lies exactly in the extent to which one possesses the adaptive traits that religion has evolved to confer': group solidarity and additional, agential levels of explanation.[118] However, Hoogheem argues that evocriticism fails to articulate a definition of religion that incorporates the religions of science and of capitalism.[119] Indeed, Hoogheem argues that one must turn to other literary theories in order to understand and articulate the sacred overtones of secular

[116] Hoogheem, 56.
[117] Hoogheem, 57.
[118] Hoogheem, 66.
[119] Hoogheem, 68.

characters and their actions within *The Year of the Flood*. Unlike Carroll, who claims that evolutionary literary theory will subsume all other literary approaches, Hoogheem claims that use of a case study such as Atwood's *The Year of the Flood* show that evocriticism 'has value as a methodology among methodologies' but 'falters as a metaphysics', as currently theorised.[120]

The intersection of evolutionary theory and literary theory, as explored above, has revealed examples of use of the concepts of literary language or story, which one could bring into a science-religion-and-literature study with a literature-in-science-and-religion method using literary theory.

Conclusion

This chapter has considered three examples of using literary theory at the intersection of literature and science: science as metaphor; posthumanism; and the intersection of brain science and evolution with literature. It is the final chapter of a set of three, composing Part Two of this thesis, which together have been exploring the use of literary theory in order to study the intersection of literature and society, religion, or science. These three chapters are intended to outline methodological examples and resources that can be used for a literary theory approach within science-religion-and-literature. These three chapters have included examples of the critical theory and literary language/story approaches, as initially outlined in Chapter 2. Literature has been the common factor in these three chapters due to the methodological interest in how to incorporate literature into a science-religion-and-

[120] Hoogheem, 69.

literature study. Both literary theory approaches—critical theory and the concept of literary language or story—are examples of a literature-in-science-and-religion method, due to their ability to maintain equal (or assert primary) significance of literary theory or particular literary works alongside the traditional methods and concerns of the science-and-religion field. Integration of all three disciplines (literature, science, and religion) is exemplified in the relevant studies portrayed in Chapter 2. Part Three, to which we now turn, will exposit the case study texts, Margaret Atwood's *MaddAddam* trilogy, in order to portray a revelatory approach to particular texts (another literature-in-science-and-religion method).

Part Three

Using Particular Texts: The *MaddAddam* Trilogy

Chapter 6

Introduction to the Case Study

Introduction

Part Two was concerned with the resources available for methods within science-religion-and-literature that use literary theory, whether critical theory or the concepts of literary language or story. Part Three will now work to portray a revelatory approach, which will be done explicitly in Chapters 8 and 9. However, Chapters 6 and 7 will set us up to more fully appreciate a revelatory approach. One way in which this will be done is through comparison with an explanatory approach to the trilogy in Chapter 7. Examples of both explanatory and revelatory approaches were given in the review of the nascent science-religion-and-literature field in Chapter 2. However, assessing the revelatory approach will be aided through comparison with the explanatory approach, using the same case study. Using the different approaches on the same text highlights the fact that the difference is one of method, rather than of literary text or author. The case study chosen for this task is Margaret Atwood's *MaddAddam* trilogy, composed of *Oryx and Crake* (2003), *The Year of the Flood* (2009), and *MaddAddam* (2013). Although choosing a trilogy means that I am working with three texts, rather than one, this trilogy contains a single storyworld and a shared set of characters, plot, and time frame. As will be seen in this chapter, previous scholarship has been interested in the intersection of science and religion in the *MaddAddam* trilogy, enabling the trilogy to be an ideal choice for assessing its relationship to the science-and-religion field.

Part Three is composed of four chapters. This first chapter will introduce the case study by providing a summary of the texts, a review of scholarly literature on the trilogy, and a section on critically reading the trilogy, which includes a discussion of genre and an exploration of the connection between fictional text and extra-textual reality. Chapter 7 will present three explanatory approaches. Chapter 8 will present the first example of a revelatory approach, using thematic study.[1] Chapter 9 will present the second example of a revelatory approach, using characterisation. The explanatory approach will be analysed in Part Four.

Summary of Plot and Text Components

Oryx and Crake uses third-person, limited narration through the internal focalising character, Jimmy. Although the present-time of narration is post-apocalypse, the story is composed by Jimmy as a retelling of his own life-story. Jimmy's account of his past involves his genius school friend Crake (Glenn) and his crush Oryx. Crake becomes a genetic engineer, conducting research on immortality for a scientific corporation, along with a group of scientists known as MaddAddam. Crake's research results in the Crakers, genetically-engineered biobeings who are 'immortal' because they have no concept of their own mortality. Crake also invents BlyssPluss, a contraceptive marketed to prevent sexually transmitted diseases and heighten sexual experience. Crake reveals to Jimmy that the pill is actually a permanent sterilization pill. After Crake and Oryx distribute the pill, a highly

[1] Not to be confused with the thematic approach, which studies a science-and-religion theme, concept, problem, or topic across multiple literary texts by multiple authors and is considered a science-and-religion-in-literature approach.

communicable and fatal disease develops and spreads into a global pandemic. When Crake returns, he slits Oryx's throat and Jimmy shoots him. After the pandemic, Jimmy renames himself 'Snowman' and cares for the Crakers, teaching them to survive in a transitioning, post-human world. Snowman supplements this with a myth concerning their creation by Crake and Oryx, in which both become deified. Jimmy loses his sanity throughout the text—a loss that correlates with his losses of physical health, ecological dominance, and sense of humanity. The text ends with Jimmy in a delusional state, stumbling upon three other humans.

The Year of the Flood covers a parallel timeline to *Oryx and Crake*, using third-person, limited narration through the internal focalising character, Toby, and the first-person narration of Ren. Whereas *Oryx and Crake* reveals pre-apocalypse life from within the sterile Compounds of scientific corporations, *The Year of the Flood* reveals pre-apocalypse life in the dishevelled Pleeblands (cities run by anarchy and capitalism). Ren and Toby survive the deadly contagion via coincidental and extreme isolation, and both, similar to Jimmy, fear that they are each the only human beings left alive. Ren and Toby both share a history within a green religious cult, the God's Gardeners, which is dedicated to preserving God's creatures, ushering the world back to its Edenic state following the 'Waterless Flood', and a scientifically-informed understanding of the Human Words of God. As with the style of narration in *Oryx and Crake*, *The Year of the Flood* follows Ren and Toby in their current situation, as well as in their retelling of their individual stories. Ren was born in the Compounds, smuggled out to God's Gardeners, then returned to the Compound by her mother. Ren's life intersects those of Jimmy and Glen at the Compound. Ren eventually

becomes a trapeze dancer in a sex club, where she was isolated in a bio-containment room during the pandemic. Ren is saved from isolation by her friend Amanda. The two find other survivors, then they are kidnapped by violent criminals ('Painballers').

Toby is saved as a young woman from her sexually abusive employer by the charismatic God's Gardener leader, Adam One. Despite her doubts and disbelief, Toby stays with the Gardeners and eventually takes a leadership role in the cult, thereby learning of the aggressive stance that the Gardeners have taken against the Compounds. Toby is forced to leave the Gardener home for her own safety and is hidden by them under a false identity working in a health spa, where she becomes isolated during the Waterless Flood (pandemic). Whilst isolated there, she thinks she hallucinates, seeing Jimmy/Snowman and the blue-tinged Crakers and then a group of humans. Eventually Ren escapes the Painballers and finds Toby's safe-house. When Toby and Ren save Amanda, Jimmy appears. The text concludes with the group of humans hearing the singing approach of the Crakers. Extra-narrative elements are included in this text relating to the liturgical practices of God's Gardeners; the text is divided into sections according to Saint and Festival days, and each section opens with the script of an Adam One sermon and a hymn from the God's Gardener Hymnbook.

MaddAddam continues the post-apocalyptic narration through the third-person, limited narration using the character, Toby. The post-apocalypse narration involves the development of Zeb and Toby into lovers, scientific speculation concerning impregnation of young female humans by Craker males (sex and sexuality are prominent in this text), the threat of the Painballers, and the potential threat of

pigoons. *MaddAddam* presents the back-story of Zeb; however, his story is transmitted through Toby's focalisation. It is revealed that Adam One and Zeb are half-brothers. Zeb tells of their abusive, adulterous, and murderous father, and of his corporate-friendly cult, the Church of PetrOleum. Zeb and Adam expose their father and escape from him. They separate until Adam summons Zeb to help with the implementation of God's Gardeners and MaddAddam. Through this work, Zeb meets young Crake, who becomes an inside contact for MaddAddam. Zeb also uses a dose of suspected-to-be-deadly pills, smuggled from a Compound, to poison and kill his father. Eventually, MaddAddam and the God's Gardeners split, under Zeb and Adam One, respectively. Crake blackmails MaddAddam into joining his 'Paradice' project (Crakers and BlyssPluss). As Zeb relates his life to Toby, she—taking over the role of Jimmy/Snowman—relates his story to the Crakers, who add it to their mythology, near-deifying Zeb. These stories, given to the Crakers, are presented in the style of Adam One's sermons; however, because Toby is the narrator of *MaddAddam,* her non-sermonising narration includes reflections upon these sermon-like sections. Toby spends her time post-apocalypse in the integrated camp of MaddAddamites, God's Gardeners, and Crakers. A young Craker, Blackbeard, befriends Toby, and she teaches him to read and write. Seeking guidance concerning Amanda, who is pregnant and suicidal, Toby self-induces a hallucinogenic state and travels to the grave of Pilar (her mentor within the God's Gardeners) to speak with her. While at the grave, a pigoon sow appears and, according to Blackbeard, speaks to Toby. This experience inaugurates an alliance between pigoons and humans against the Painballers, which results in the capture and trial of the Painballers: Crakers abstain

from voting, pigoons vote to kill, and humans vote for and carry out the execution. The text concludes with the syncretisation of God's Gardener and Craker beliefs and rituals, the transition of prophetic voice from Toby to Blackbeard, and the transition from oral to written mythology.

Literature Review for the MaddAddam *Trilogy*

This section will briefly introduce the literature available on Margaret Atwood and the *MaddAddam* trilogy and then explore critical analyses of the trilogy with science-and-religion import.

Although Margaret Atwood is still producing literary work, there are already copious biographical and critical studies of her and her work. Of particular note are the book-length compilations on Atwood by Coral Ann Howells[2] and Heidi Slettedahl Macpherson.[3] Interviews of Atwood are available through various mediums, and she has given interviews on the books and their themes. For example, Atwood discussed *Oryx and Crake* and *The Handmaid's Tale* with American journalist Bill Moyers on a show about faith and reason.[4] In such interviews, Atwood speaks about society and reality beyond the storyworlds of her books.[5]

[2] Coral Ann Howells, *Margaret Atwood*, 2nd ed (Basingstoke: Palgrave Macmillan, 2005); Coral Ann Howells, ed., *The Cambridge Companion to Margaret Atwood*, Cambridge Companions Complete Collection: Cambridge Companions to Literature and Classics (Cambridge: Cambridge University Press, 2006).

[3] Heidi Slettedahl Macpherson, *The Cambridge Introduction to Margaret Atwood*, Cambridge Introductions to Literature (Cambridge: Cambridge University Press, 2010).

[4] See Margaret Atwood, Faith and Reason: Margaret Atwood and Martin Amis, interview by Bill Moyers, 28 July 2006, https://vimeo.com/61192027.

[5] For example, see Catherine Keenan, 'She Who Laughs Last', The Sydney Morning Herald, 3 May 2003, http://www.smh.com.au/articles/2003/05/02/1051382088211.html.

The three books of the *MaddAddam* trilogy were reviewed in media concerned with literature, religion, and science. Susan M. Squier reviewed the book in the biotechnology books section of *Science*, emphasising that Margaret Atwood 'is inspired by the imaginative force and urgent social importance of scientific fact'.[6] However, geneticist Anthony Griffiths attacks the science, mainly that of transgenics, behind Atwood's work, claiming that such programmes 'are probably impossible'[7] and that 'Crake's fictional tinkering with human behaviour is laughable from the scientific perspective'.[8] In *Christian Science Monitor*, Ron Charles acknowledges Atwood's 'clever eco-feminist insight' and 'knack for satiric extensions of developments already underway' within *Oryx and Crake*; however, he concludes that the book is 'like one of those genetically enhanced tomatoes in the grocery store: impressive-looking but not very satisfying'.[9] Science fiction author and fellow Canadian Robert Sawyer is heavily critical of Atwood's *Oryx and Crake*: 'In Atwood's view, every problem we face now is going to get worse, not better. I disagree. Human ingenuity will give us all a wonderful future'.[10] Sawyer further explains, 'To publish a novel telling us the environment is going to hell after Canada has signed the Kyoto accord is to have missed the prophetic boat by decades'.[11] However, the American literary critic and Marxist theorist, reviewing *The Year of the Flood*, points out the

[6] Susan M. Squier, 'A Tale Meant to Inform, Not Amuse', *Science*, New Series, 302, no. 5648 (14 November 2003): 1154.

[7] Anthony Griffiths, 'Genetics According to *Oryx and Crake*', *Canadian Literature* 181 (Summer 2004): 193.

[8] Griffiths, 194.

[9] Ron Charles, 'The Brave New World of Genetic Engineering; Margaret Atwood Follows Today's Trends Into a Terrifying Oblivion', *Christian Science Monitor*, 8 May 2003, 18.

[10] Robert Sawyer, 'Science and Salvation: "Human Ingenuity Will Give All of Us a Wonderful Future"', *Maclean's* 116, no. 17 (28 April 2003): 48.

[11] Sawyer, 48.

importance of the location of Atwood's trilogy: the United States. Discussing the theology of the God's Gardeners, Jameson states: 'The Fall is not properly grasped unless it is understood to be a fall into Americanism'.[12] Jameson continues: 'This then is the world of Atwood's dystopia, for which, in this global near future, the term American is no longer necessary'.[13] Reviewing *The Year of the Flood*, Jane Ciabattari remarks upon Atwood's 'uncanny ability to spin timely, very plausible and sometimes even terrifyingly prescient tales' and describes *The Year of the Flood* as 'both a warning and a gift'.[14] Because the scientific and religious themes of the book have had significant development in the first two books of the trilogy, *MaddAddam* seems less ground-breaking in these areas; however, Yvonne Zipp, reviewing the book for *Christian Science Monitor*, offers a suggestion for why this might be: 'The Science of "MaddAddam" is particularly interesting: When Atwood began the trilogy more than a decade ago, many of the inventions she described sounded much farther-fetched than they do today. While we don't have Mo'Hairs, goats that can grow human hair, the genetic splicing doesn't sound overly outlandish.'[15] The scientific and religious elements are not lost, as reviewer Michèle Roberts, points out, for the very 'opening invokes religious and scientific discourses: "In the beginning, you lived inside the Egg. That is where Crake made you. Yes, good, kind Crake. Please stop singing or I can't go

[12] Fredric Jameson, 'Then You Are Them', *London Review of Books* 31, no. 17 (10 September 2009): 8.

[13] Jameson, 8.

[14] Jane Ciabattari, 'Disease and Dystopia in Atwood's "Flood"', NPR Books, 10 September 2009, http://www.npr.org/templates/story/story.php?storyId=112706370.

[15] Yvonne Zipp, 'MaddAddam', *The Christian Science Monitor*, 13 September 2013, sec. Books, 24.

on with the story."'[16] However, *MaddAddam* foregrounds 'questions of storytelling, writing and creativity'[17] and that of humanity, 'offering a broader definition of humanity and its ability to continue to evolve'.[18] According to *New York Times* reviewer, Andrew Sean Greer, 'This finale to Atwood's ingenious trilogy lights a fire from the fears of our age, then douses it with hope for the planet's survival. But that survival may not include us.'[19]

Critical analysis of *Oryx and Crake*, *The Year of the Flood*, and *MaddAddam* leads one into a wide variety of discourses. The fields traversed include law,[20] US-Canadian relations,[21] evolutionary criticism,[22] eco-feminism,[23] pedagogy,[24] death,[25]

[16] Michèle Roberts, 'Book Review: *MaddAddam*, By Margaret Atwood; This Epic Dystopian Journey through a Wasteland of High Science and Low Deeds Ends in Hope', *The Independent*, 16 August 2013, Independent Online edition, sec. Reviews.

[17] Roberts.

[18] Zipp, 'MaddAddam', 24.

[19] Andrew Sean Greer, 'Final Showdown', *The New York Times*, 8 September 2013, sec. New York Times Book Review, 11.

[20] For example, see Jay Sanderson, 'Pigoons, Rakunks and Crakers: Margaret Atwood's *Oryx and Crake* and Genetically Engineered Animals in a (Latourian) Hybrid World', *Law and Humanities* 7, no. 2 (2013): 218–39, http://dx.doi.org/10.5235/17521483.7.2.218.

[21] For example, see Alice Ridout, 'Margaret Atwood's Straddling Environmentalism', *Comparative American Studies: An International Journal* 13, no. 1–2 (2015): 31–41, https://doi.org/10.1179/1477570015Z.00000000097.

[22] Also called *evocriticism*. For example, see Hoogheem, 'Secular Apocalypses: Darwinian Criticism and Atwoodian Floods'; Solbørg Sviland, 'Instinct or Insight in Dystopia: Reading Margaret Atwood and Octavia Butler through a Darwinian Lens' (Master's Dissertation, University of Bergen, 2011)..

[23] For example, see Soraya Copley, 'Rereading Marge Piercy and Margaret Atwood: Eco-Feminist Perspectives on Nature and Technology', *Critical Survey* 25, no. 2 (2013): 40–56, https://doi.org/10.3167/cs.2013.250204.

[24] For example, see Sean Murray, 'The Pedagogical Potential of Margaret Atwood's Speculative Fiction: Exploring Ecofeminism in the Classroom', in *Environmentalism in the Realm of Science Fiction and Fantasy Literature*, ed. Chris Baratta (Newcastle upon Tyne: Cambridge Scholars Publishing, 2012), 111–25; Sean Murray, 'Food for Critical Thought: Teaching the Science Fiction of Margaret Atwood', *Pedagogy: Critical Approaches to Teaching Literature, Language, Composition, and Culture* 14, no. 3 (Fall 2014): 475–98, https://doi.org/10.1215/15314200-2715814.

[25] For example, see Sarah A. Appleton, 'Corp(Se)Ocracy: Marketing Death in Margaret Atwood's Oryx and Crake and The Year of the Flood', *LATCH: A Journal for the Study of the Literary Artifact in Theory, Culture, or History* 4 (2011): 63–73.

postmodernism,[26] game theory,[27] neoliberalism,[28] materialism,[29] public policy,[30] and posthumanism.[31] Exploring all of these contributions is beyond the scope of this thesis; however, we will review critical engagements with the trilogy that explicitly bring science and religion into their studies.[32] As each of these studies is conducted by a literary scholar, they would lend themselves to a revelatory approach, since they are primarily interested in studying the literary text, rather than commenting on the science-and-religion field. However, similar to the fate of Michael Ruse's study of Darwinism as religion in popular literature, which failed to be revelatory despite the brief, yet unexplored, revelatory comments, these studies fail to fully engage science-and-religion despite brief, yet unexplored, comments about the intersection of science and religion. Thus, they *lend* themselves to a revelatory approach, but fail to be revelatory approaches (literature-in-science-and-religion method) in and of themselves. Exploration of these studies reveals two dominating themes: first, the

[26] For example, see Stephen Dunning, 'Margaret Atwood's *Oryx and Crake*: The Terror of the Therapeutic', *Canadian Literature*, no. 186 (Autumn 2005): 86–101; Debrah Raschke, 'Margaret Atwood's *MaddAddam* Trilogy: Postmodernism, Apocalypse, and Rapture', *Studies in Canadian Literature/Etudes En Littérature Canadienne* 39, no. 2 (2014): 22–44.

[27] For example, see J. Paul Narkunas, 'Between Words, Numbers, and Things: Transgenics and Other Objects of Life in Margaret Atwood's *MaddAddam*', *Critique: Studies in Contemporary Fiction* 56, no. 1 (2015): 1–25, https://doi.org/10.1080/00111619.2013.849226.

[28] For example, see Chris Vials, 'Margaret Atwood's Dystopic Fiction and the Contradictions of Neoliberal Freedom', *Textual Practice* 29, no. 2 (March 2015): 234–54, https://doi.org/10.1080/0950236X.2014.993518.

[29] For example, see Danette DiMarco, 'Going Wendigo: The Emergence of the Iconic Monster in Margaret Atwood's *Oryx and Crake* and Antonia Bird's *Ravenous*', *College Literature* 38, no. 4 (Fall 2011): 134–55.

[30] For example, see Cindy L. Pressley, 'Using Ecotopian Fiction to Reimagine Public Policy: From a Resource-Based Narrative to a Competing Values Narrative', *Administrative Theory & Praxis* 37, no. 2 (2015): 111–26, https://doi.org/10.1080/10841806.2015.1027570.

[31] For example, see Calina Ciobanu, 'Rewriting the Human at the End of the Anthropocene in Margaret Atwood's *MaddAddam* Trilogy', *Minnesota Review*, New Series, 83, no. 1 (2014): 153–62.

[32] This overview does not cover critical analyses of the trilogy on science or religion separately nor analyses that might have science-and-religion implications that are unexplored by the author of said analysis.

persistence of religion in an age of science and technology; second, the necessity of religion in an age of science and technology in order to provide meaning and motivation.

The first theme, the persistence of religion in an age of science and technology, appears when studying *Oryx and Crake* on its own, due to Crake's failed attempt to remove the God-spot from the Crakers. Stephen Dunning links Crake's failed attempt to the failure of secular political substitutes for the Judeo-Christian narrative they rejected, 'in favour of science's epistemology and precise quantification'.[33] According to Dunning, '*Oryx and Crake* offers a darkly comic critique of our triumphant scientific modernity that is only now beginning to reveal its true shape, having finally exhausted the resources of the world it has systematically destroyed'.[34] Therefore, Dunning claims that the novel 'insists that sacred narrative cannot be excised without the loss of our humanity, and that we will not recover ourselves until we recover the stories that tell us who we are'.[35] Thus the heavily scientific novel is also heavily religious. For example, the relationship between Crake, Jimmy/Snowman, and Oryx, as well as their relation to the Crakers, 'suggests the Christian Trinity whose authority science has effectively displaced. Crake assumes the role of Father, creator of all, triumphant over chaos; Snowman, that of sacrificial Son and immanent Logos (and perhaps also of Gnostic Logos marooned in matter); and Oryx, that of Spirit, omnipresent, "feminine" Paraclete'.[36] Dunning continues:

[33] Dunning, 'Margaret Atwood's *Oryx and Crake*: The Terror of the Therapeutic', 86–87.
[34] Dunning, 88–89.
[35] Dunning, 87. Notice the close link with the second theme, here.
[36] Dunning, 95. For different perspective on the reworking of the Christian myth, see Coral Ann Howells, 'Margaret Atwood's Dystopian Visions: *The Handmaid's Tale* and *Oryx and Crake*', in *The*

'Crake's secular Eden has proven decidedly sacred. The familiar religious patterns stubbornly reassert themselves; how and why we are not told. But we may be sure that Crake would not know either'.[37] Dunning concludes that '[a]lthough the novel is understandably coy about the status of Snowman's sacred stories, it clearly suggests that we cannot do without such tales, not at least, if we wish to remain even marginally human'.[38] This study assumes a close relation between story and religion, as well as a conflict model between science and religion; for Dunning, religion—in the form of sacred stories—is necessary for humans to be human, hence its persistence in the face of advancing science and technology. This theme of the persistence of religion is closely connected with the second theme of the necessity of religion.

The second theme, the necessity of religion in an age of science and technology in order to provide meaning and motivation, is explored by the majority of scholars interested in the intersection of science and religion in the *MaddAddam* trilogy. Each of the five studies examined below relate this theme to the ecological crisis presented in the trilogy. Analysing *Oryx and Crake* and *The Year of the Flood* alongside a nonfiction companion text by Atwood, *Payback: Debt and the Shadow Side of Wealth*, Shannon Hengen articulates the connection between economics, science, and religion in these works:

> To have a concept of moral and environmental debt, humankind must have a sense of responsible behaviour, a sense that acknowledges and accepts our dependence upon one another—our vulnerability—and the interconnection of ourselves with nature. But where does such

Cambridge Companion to Margaret Atwood, ed. Coral Ann Howells, Cambridge Companions Complete Collection: Cambridge Companions to Literature and Classics (Cambridge: Cambridge University Press, 2006), 171. Snowman as prophet; Crake as Creator God; Oryx as Mother Earth.

[37] Dunning, 'Margaret Atwood's *Oryx and Crake*: The Terror of the Therapeutic', 95–96.

[38] Dunning, 98.

> acknowledgement arise from? Where is the discourse in our current affluent culture that articulates such responsibility? Atwood looks for it in ancient, enduring spiritual belief.[39]

Jimmy/Snowman represents the lack of this discourse, despite his dedication to words, and especially in contrast to the Crakers; however, Adam One, represents a return to spiritual belief. This spiritual belief offers ethical vocabulary necessary 'to curb the godlike power of science before it is too late'.[40] Therefore, religious language, expressed through *Oryx and Crake*, is in conflict with science. Hengen concludes that 'Margaret Atwood demands an interpenetration of the languages of traditional wisdom and ever-changing technology, an interpenetration best achieved by those of us who … value the power of words'.[41] It is, therefore, the work of literature to communicate necessary religion in order to save the environment from the damage enabled by our use of technology.

Hannes Bergthaller argues that *Oryx and Crake* and *The Year of the Flood* 'are principally concerned with the question of what role language, literature and, more generally, the human propensity for symbol-making can play in our attempts to deal with the ecological crisis—a crisis that Atwood describes as arising from flaws in humanity's biological make-up'.[42] Bergthaller begins by explaining the connections of such a claim to the field of ecocriticism: 'The idea that the roots of the ecological crisis are to be found in a failure of the imagination, and that literary studies—the human

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[39] Shannon Hengen, 'Moral/Environmental Debt in *Payback* and *Oryx and Crake*', in *Margaret Atwood: The Robber Bride, The Blind Assassin, Oryx and Crake*, ed. J. Brooks Bouson, eBook (EBSCOhost: EBSCO Publishing, 2010), 79.

[40] Hengen, 85.

[41] Hengen, 85.

[42] Hannes Bergthaller, 'Housebreaking the Human Animal: Humanism and the Problem of Sustainability in Margaret Atwood's *Oryx and Crake*', *English Studies* 91, no. 7 (2010): 729, https://doi.org/10.1080/0013838X.2010.518042.

imagination being their home turf—therefore have an important role to play in understanding and overcoming this crisis, is foundational to most forms of ecocriticsm'.[43] The environmentalist conceptual framework produces variations of one basic injunction that Bergthaller simplifies as 'the *ecological imperative*: humans ought to acknowledge (to properly perceive) that they are a part of nature and behave accordingly'; however, Bergthaller then argues that Atwood's novels reveal a paradox implicit within this imperative: the fact that we ought to act as if we are part of nature means that we actually are not, for if we were the injunction would be meaningless.[44] In *Oryx and Crake*, humanism, as represented by Jimmy, has failed to recognise itself as a bio-political project;[45] therefore, it is the genetic engineer Crake who takes the biological rootedness of humanity seriously and to its radical conclusion: alter the nature of humanity as to remove the possibility of ethical choice.[46] Yet Crake's project falls short, as his attempt to 'breed the wildness out of man [*sic*]'[47] overestimates the determinism of humanity's evolutionary inheritance.[48] Bergthaller ends his analysis of *Oryx and Crake* calling for 'a perspective that would, as it were, put these two half-understandings [of the ecological imperative] together'.[49] Thus the 'physico-theological anthropodicy' of *The Year of the Flood*, in which 'a radical environmentalist sect … must resuscitate the Biblical myth of the Fall in order to explain the strange fact that humans, in order to behave naturally, must

[43] Bergthaller, 730.
[44] Bergthaller, 731. Italics original.
[45] Bergthaller, 737.
[46] Bergthaller, 731.
[47] Bergthaller, 735.
[48] Bergthaller, 737.
[49] Bergthaller, 737.

cultivate themselves'.[50] God's Gardener theology thus provides 'a symbolic order within which the fact of survival can appear as meaningful and "good"'.[51] Bergthaller elucidates the effectiveness of Gardener theology thus:

> Their fanciful version of natural theology, which grafts views familiar from Deep Ecology (most importantly, the evolutionary kinship of all species and the ethical obligations it entails) onto an essentially Christian religious framework, contains much that is patently silly[.] … However, the doctrines that Adam One preaches and on which the Gardeners collective life rest are designed to achieve what eluded both Jimmy and Crake in *Oryx and Crake*: a reconciliation of the nature of human beings as evolved biological creatures, with all the frailties and flaws it entails, with their need for an imaginary order that transcends and, as it were, extenuates these biological givens.[52]

Thus '[f]aith is necessary to complement scientific insight if the latter is not to breed nihilism and despair'.[53] Faith, fictions, and narratives, in Bergthaller's analysis, provide normative content to nature, in which survival is meaningful. This is perhaps an example of an understanding of science and religion as independent discourses, in which science cannot provide meaning, whereas religion can; however, Bergthaller's article begins with an articulation of the conflict between the sciences and humanities in proving their usefulness to funders, university administrators, and the public.

Concerned with ecological ethics, J. Brooks Bouson explains how Atwood 'looks to religion—specifically eco-religion—as she seeks evidence of our ethical capacity to find a remedy to humanity's ills'[54]—the violence, corporatisation,

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[50] Bergthaller, 731.
[51] Bergthaller, 738.
[52] Bergthaller, 739.
[53] Bergthaller, 740.
[54] J. Brooks Bouson, '"We're Using Up the Earth. It's Almost Gone": A Return to the Post-Apocalyptic Future in Margaret Atwood's *The Year of the Flood*', *The Journal of Commonwealth Literature* 46, no. 1 (Spring 2011): 17.

commodification, and unbridled consumption of Americanism-gone-global.[55] It is the eco-religion of the pacifist, vegetarian God's Gardeners through which Atwood mixes science, religion, and environmentalism.[56] Bouson's study is primarily interested in *The Year of the Flood* as 'a feminist, anti-corporate and radically ecological work',[57] and any treatment of the intersection of science and religion appears only because of the existence of the eco-religious cult, the God's Gardeners, and because of Crake's repeated musings on the god-spot.

Our two final studies are concerned with religiously-rooted hope in the face of ecological crisis. According to Gerry Canavan, the closing message of *Oryx and Crake* is that there is hope for the future but not for us—'not for us the way we are, the way we now live'.[58] However, *The Year of the Flood* presents an alternative to the unattainable (for us) Craker utopia: the God's Gardeners. Canavan explains that '[t]he ultimate intellectual project of God's Gardeners is to unite the "two cultures" of *Oryx and Crake*: to reconcile science to humanism and find some way to move forward with both'.[59] This is borne out through the 'astounding number' of God's Gardeners

[55] Bouson, 15.

[56] Bouson, 18. Bouson has published repeatedly on Margaret Atwood and the *MaddAddam* trilogy, addressing topics such as bioengineering, posthumanism, deep ecology, and radical environmentalism. See J. Brooks Bouson, '"It's Game Over Forever": Atwood's Satiric Vision of a Bioengineered Posthuman Future in *Oryx and Crake*', *Journal of Commonwealth Literature* 39, no. 3 (September 2004): 139–56, https://doi.org/10.1177/0021989404047051; J. Brooks Bouson, 'A "Joke-Filled Romp" Through End Times: Radical Environmentalism, Deep Ecology, and Human Extinction in Margaret Atwood's Eco-Apocalyptic *MaddAddam* Trilogy', *The Journal of Commonwealth Literature* 51, no. 3 (2016): 341–57, https://doi.org/10.1177/0021989415573558.

[57] Bouson, '"We're Using Up the Earth. It's Almost Gone": A Return to the Post-Apocalyptic Future in Margaret Atwood's *The Year of the Flood*', 23.

[58] Gerry Canavan, 'Hope, But Not for Us: Ecological Science Fiction and the End of the World in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*', *Lit: Literature Interpretation Theory* 23, no. 2 (2012): 154, https://doi.org/10.1080/10436928.2012.676914.

[59] Canavan, 154.

who survive the pandemic without the aid of the antidote Crake gave to Jimmy.[60] Canavan asserts that the two novels be read allegorically, such that readers understand 'the urgent necessity of radically changing our social relations and anti-ecological lifestyles—of choosing to make a better *social* world before it is too late for the natural one'.[61] Canavan believes there is hope for us, but we must be willing to change. Notice that Canavan is more interested in the relation between science and humanism than in the relation between science and religion.

Nazry Bahrawi responds to Canavan's analysis of hope, writing that '[t]he hope for a better world is *not* to be found within the certitude of Science, but the perennial discontentment of the humanly "Not-Yet" condition'[62]—the 'view of the human subject as that which occupies the liminal state between the terrestrial and otherworldly spheres'.[63] Bahrawi's essay 'explores the bioethical facets of Atwood's novels stemming from the speculation that human flourishing in the form of scientism has ironically led to the manipulation and degradation of nature'.[64] Bahrawi's critique is informed by the philosophy of Deep Ecology as formulated by Arne Naess and George Sessions[65] and by theologians David E. Klemm and William Schweiker in their discussion of 'overhumanisation', which 'can be seen as the dark side of secular humanism, a philosophical outlook that has enabled progress but also resulted in some of our most daunting problems' such as wars, ecological

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[60] Canavan, 155.

[61] Canavan, 155. Italics original.

[62] Nazry Bahrawi, 'Hope of a Hopeless World: Eco-Teleology in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*', *Green Letters* 17, no. 3 (2013): 262, https://doi.org/10.1080/14688417.2013.862156. Italics original.

[63] Bahrawi, 260.

[64] Bahrawi, 251.

[65] Bahrawi, 253.

endangerment, and unjust distribution of goods and destructive forces.[66] Therefore, secular humanism has, at best, not delivered on its promise and, at worse, caused further damage. Bahrawi argues that the first two novels of the trilogy have subverted this secular humanism and overhumanisation by recouping 'the validity of "faith" in an empirical world, specifically through their endorsement of a messianic form of eco-theology, or "eco-teleology"'.[67] Bahrawi defines faith as 'the impulse to place trust in a world view or belief system that is non-empirical, and thus unverifiable', and he argues that 'eco-teleology can save humanity from certain biological doom' making '"faith" in the MaddAddam realm … its most pervasive utopian impulse, the *hope* of its hopeless world'.[68] As reflected in the Gardeners' 'blend of Christian-Biology' and similar to the many engineered creatures populating the text, faith in *Oryx and Crake* and *The Year of the Flood* 'has been spliced into something between science and religion'.[69] Such insistence upon faith and spirituality serves to desecularise utopia, especially the utopian attempt of scientism. Furthermore, Bahrawi's understanding of the God's Gardener eco-teleology 'strips the onus of agency from a divine being, putting it squarely onto humanity'.[70] Echoing other ecocritics, Bahrawi affirms that 'the hope for a better world is not invested in inventions but the ability to think creatively' and that 'imagination resides at the core

[66] Bahrawi, 252.
[67] Bahrawi, 252.
[68] Bahrawi, 252–53. Italics original.
[69] Bahrawi, 253.
[70] Bahrawi, 257. This broaches the topic of religion's pragmatic role in adapting for survival. For further discussion, see Hoogheem, 'Secular Apocalypses: Darwinian Criticism and Atwoodian Floods'; Laura Wright, 'Vegans, Zombies, and Eco-Apocalypse: McCarthy's the Road and Atwood's Year of the Flood', *ISLE: Interdisciplinary Studies in Literature and Environment* 22, no. 3 (1 September 2015): 507–24, https://doi.org/10.1093/isle/isu096.

of human survivability' as exhibited in the Crakers and the God's Gardeners.[71] The hope presented in eco-teleological texts, according to Bahrawi, is that of 'transcending a degraded present'.[72] Bahrawi's study comes closest to a revelatory approach, in that the article comments on both the overall relation of science and religion (faith as something spliced between science and religion, like ustopia as a splice between utopia and dystopia[73]), as well as upon the specific issue of eco-theology (suggesting a version of eco-teleology that places agency with humanity's capacity for imagination/creativity). However, Bahrawi does not further explore these implications beyond the study of utopian and dystopian nature of literary ecological tropes.

This literature review of the reception and critical analysis of the *MaddAddam* trilogy has provided an overview of the work already done on Margaret Atwood and the trilogy as they relate to the intersection of science and religion. Religious and scientific themes, as well as the relation between science and religion, have been identified within the trilogy by many Atwood critics and scholars. The two dominant themes concerning the intersection of science and religion are, first, the persistence of religion in the face of scientific and technological advancements and, second, the necessity of religion in a society of advanced science and technology in order to provide meaning and motivation. Often scholars are most interested in the intersection of science and religion as it relates to ecological and climate crises.

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[71] Bahrawi, 'Hope of a Hopeless World: Eco-Teleology in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*', 259.

[72] Bahrawi, 261.

[73] Bahrawi, 253–54.

Critically Reading the MaddAddam *Trilogy*

This section on critically reading the *MaddAddam* trilogy will explore genre analysis and connections between text and extra-textual reality. The section on genre will explore genre theory and complications for genre in relation to science fiction and Atwood's texts. Genres are significant within literary criticism because they give clues as to what a text means—how to interpret the text and how the text relates to other texts and to the non-textual world. The purpose of the genre section is to explore possible genres and justify approaching the trilogy as science fiction. The next section will facilitate a brief discussion on the relationship between the *MaddAddam* trilogy and the 'real' world. Voices in this discussion will include those of Atwood on her own writing and texts, readers and reviewers, and critical theorists.

Genre analysis

As previously stated, genre provides guidance to properly reading and interpreting a text. Genre theory is, therefore, not unique to literary discourse. Consider, for example, an attempt to read and interpret the opening chapter of Genesis. Is this an historical account or poetry? How does one read it in comparison to Darwin's *Origin of Species* or to a peer-reviewed scientific article reporting research on genetic mutations? The genre chosen will determine how one understands the text; for example, its source of information, its purpose, and its relation to reality beyond the text. A discussion of genre is therefore imperative, not

for the purpose of merely classifying a text, such as the *MaddAddam* trilogy, but for the purpose of critically reading the text with the tools that genre theory provides.

In the introduction to her book, *In Other Worlds: SF and the Human Imagination*, Margaret Atwood claims that the 'proximate cause' for exploring her relationship with science fiction was a review of *The Year of the Flood* by renowned science fiction and fantasy author Ursula Le Guin.[74] The review caused a public dispute between the two authors, and has become so noteworthy as to appear at length in the introduction to P. L. Thomas's book *Science Fiction and Speculative Fiction: Challenging Genres*.[75] Thus a discussion on genre is required not only to address the question of how to read and interpret a text, but also because it is a discussion already occurring around the *MaddAddam* trilogy. This section will relate general genre theory, explore complications of genre theory and science fiction, and recount the dispute between Atwood and Le Guin. The intention of this discussion is to use genre theory as a platform from which to address how one might appropriately read and interpret the trilogy.

Genre theory. Although genre may seem for consumers a stable method for finding a particular series or author in a bookstore, genre theory for critical theorists has a more complex evolutionary history of definition and usage. Although the discussion

[74] Atwood, *In Other Worlds: SF and the Human Imagination*, 5.

[75] P. L. Thomas, 'Introduction: Challenging Science Fiction and Speculative Fiction', in *Science Fiction and Speculative Fiction: Challenging Genres*, ed. P. L. Thomas, Critical Literacy Teaching Series: Challenging Authors and Genre 3 (Rotterdam: Sense Publishers, 2013), 1–9.

of genres can be traced back to Aristotle,[76] a brief survey of genre theory reveals its transition from fluidity to codification and systematisation, then through a period of resistance toward an historical understanding of genre.[77] In an introductory dictionary on critical theory terms, genre is defined as a term 'used to describe a style or type of painting, book or film … characterized by a specific form, structure or thematic content'.[78] Similarly, structuralist theories of literature tend to define genre 'by arbitrary sets of conventions' such that it 'fits all literary texts into genre classifications'.[79] Definitions such as these are deceptively simple and suggest arbitrariness concerning genre definitions and applications. John Frow explains that in the school classroom and first year composition courses genre is usually 'understood taxonomically, as a classification device with relatively fixed features (which can then be modified or combined in "multigenre" forms of writing)'.[80] Frow admits that such an understanding and use of genre may facilitate practical exercises in a classroom, but he argues that it does not reflect the historical and relational aspect of genre theory, as more recently understood. According to Frow, 'Each genre's form is relative to those of all other genres in the same synchronic system, and it changes as that system evolves'.[81] Thus, genre theory is primarily relative

[76] David Macey, 'Genre', in *The Penguin Dictionary of Critical Theory* (London: Penguin Books, 2000), 159.

[77] See John Frow, '"Reproducibles, Rubrics, and Everything You Need": Genre Theory Today', *PMLA* 122, no. 5 (2007): 1626–34; John Rieder, 'On Defining SF, or Not: Genre Theory, SF, and History', *Science Fiction Studies* 37, no. 2 (2010): 191–209; Brian G. Caraher, 'Genre Theory: Cultural and Historical Motives Engendering Literary Genre', in *Genre Matters: Essays in Theory and Criticism*, ed. Garin Dowd, Lesley Stevenson, and Jeremy Strong (Bristol: Intellect Books, 2006), 29–39.

[78] Macey, 'Genre', 158.

[79] Vincent B. Leitch, ed., 'Introduction to Theory and Criticism', in *The Norton Anthology of Theory and Criticism*, 2nd ed. (New York: W. W. Norton & Company, 2010), 5.

[80] Frow, '"Reproducibles, Rubrics, and Everything You Need": Genre Theory Today', 1627.

[81] Frow, 1629.

rather than logically driven and defined; therefore, it is constantly open to re-interpretation. Furthermore, genre theory is concerned with more than mere classification; it also addresses the functions of genre.

Beyond the question of classification, Frow addresses the functionality of genres by engaging with the fields of rhetoric and cognitive science in order to demonstrate the wider uses of genre. In relation to rhetoric, Frow argues that '[w]e could think of genres as clusters of metadata—information about how to use information—that help define the possible uses of textual materials'.[82] As such, genres serve as instructions or guides to working with texts. Furthermore, because many texts can be read through more than one generic frame, it is the reader who must choose, and 'choosing between these generic frames makes a crucial difference to how certain key passages are understood'.[83] Genre serves as a paradigmatic framework through which the reader understands the text, and multiple paradigms are capable of interpreting the text-as-data. In relation to cognitive science, Frow argues that 'far from being merely stylistic devices, genres create effects of reality and truth that are central to the way the world is understood in the writing of history or philosophy or science, or in painting, or in everyday talk'.[84] When linked with the cognitive sciences in this way, 'genre theory has something crucial to say about how realities are constructed and maintained': 'Whereas the realist genres of philosophy

[82] Frow, 1631.

[83] Frow, 1631.

[84] Frow, 1632. Frow refers to this field as *cognitive poetics*, which correlates to the field of cognitive narratology. For more information, see David Herman, 'Cognitive Narratology', in *Handbook of Narratology*, ed. Peter Hühn et al., Narratologia: Contributions to Narrative Theory 19 (Berlin: Walter de Gruyter, 2009), 30–43.

or history or science, and indeed of everyday common sense, tend to assume that reality is singular and external to the forms through which we apprehend it, the notion of genre as "'frames' or 'fixes' on the world" implies the divisibility of the world and the formative power of these representational frames.'[85] Frow suggests here that genres both reflect and inform concepts of epistemology and ontology. This links genre theory to non-literary discourses concerning 'reality'.

Complications of genre theory and science fiction. The dis-unified and evolving nature of genre theory is especially noticeable as it relates to science fiction. Perhaps the most famous, though intentionally ironic, definition of the science fiction genre is that of Damon Knight: '[science fiction] means what we point to when we say it'.[86] The editors of *The Science Fiction Handbook* admit the disjointed state of genre definition amongst science fiction fans and critics:

> Most readers of science fiction spend little time or energy worrying about a definition of the genre or attempting to determine whether any given text is science fiction or not. They tend to know what sorts of stories and books they regard as science fiction and have little trouble locating works in the category to read. Scholars and critics tend, however, to be more cautious (and finicky) about categorization, so that many studies of science fiction as a genre begin with lengthy mediations on the definition of science fiction, often in order to distinguish it from other forms of 'speculative' fiction, such as fantasy and horror.[87]

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[85] Frow, '"Reproducibles, Rubrics, and Everything You Need": Genre Theory Today', 1633. Frow here quotes Rosalie Colie, *The Resources of Kind: Genre-Theory in the Renaissance* (Berkeley, California: University of California Press, 1973), 8.

[86] Damon Knight, 'Book Reviews: The Dissecting Table', *Science Fiction Adventures* 1, no. 1 (1952): 122.

[87] M. Keith Booker and Anne-Marie Thomas, *The Science Fiction Handbook* (Malden, Massachusetts: Wiley-Blackwell, 2009), 3.

These complications are, therefore, not of major concern to all those interested in science fiction.

The notable science fiction critic, Darko Suvin, defines science fiction 'as the literature of cognitive estrangement'.[88] According to Suvin, science fiction is 'a literary genre whose necessary and sufficient conditions are the presence and interaction of estrangement and cognition, and whose main formal device is an imaginative framework alternative to the author's empirical environment'.[89] Although most critical approaches to the genre will acknowledge Suvin's defining work, he has failed to bring lasting cohesion to the amorphous body of literature. John Rieder attests to this, defending the following propositions: (1) 'sf [science fiction] is historical and mutable'; (2) 'sf has no essence, no single unifying characteristic, and no point of origin'; (3) 'sf is not a set of texts, but rather a way of using texts and of drawing relationships among them'; (4) 'sf's identity is a differentially articulated position in an historical and mutable field of genres'; and (5) 'attribution of the identity of sf to a text constitutes an active intervention in its distribution and reception'.[90] Although Rieder's propositions do not invalidate attempts to define the genre, it does provide illuminating context into debates, such as that between Atwood and Le Guin (explored below), over the generic boundaries surrounding science fiction. Furthermore, it serves as a reminder that the question of genre is less about agonising over categorisation then it is about questioning what

[88] Darko Suvin, 'On the Poetics of the Science Fiction Genre', *College English* 34, no. 3 (1972): 372.

[89] Suvin, 375. See also Darko Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre* (New Haven, Connecticut: Yale University Press, 1979), viii.

[90] Rieder, 'On Defining SF, or Not: Genre Theory, SF, and History', 193.

a text is doing when it employs certain stylistic tools. Indeed, Rieder argues that '[a]ll those involved in the production, distribution, and consumption of sf—writers, editors, marketing specialists, casual readers, fans, scholars, students—construct the genre not only by acts of definition, categorization, inclusion, and exclusion … , but also by their uses of the protocols and the rhetorical strategies that distinguish the genre from other forms of writing and reading.'[91] As we have seen with general genre theory, genre theory within science fiction is also about historically situated, constantly changing, relationally driven paradigms for writing and reading texts. It was in this turbulent field of genre theory, that Margaret Atwood discovered herself, following her publication of *The Year of the Flood*.

Dispute between Atwood and Le Guin. Margaret Atwood's publication of *The Handmaid's Tale*, *Oryx and Crake*, and *The Year of the Flood* earned for her recognition from the science fiction literary field. Atwood, however, seemed disinclined to accept the label of science fiction for her works. In the introduction to her non-fiction book, *In Other Worlds: SF and the Human Imagination*, Atwood relates the public dispute between herself and Ursula Le Guin over labelling the former's works as science fiction.[92] Atwood published the following statement in 2004 concerning science fiction and *The Handmaid's Tale*:

> I define science fiction as fiction in which things happen that are not possible today—that depend, for instance, on advanced space travel, time travel, the discovery of green monsters on other planets or galaxies, or which contain various technologies we have not yet developed. But in *The Handmaid's Tale*, nothing happens that the

[91] Rieder, 197.
[92] Atwood, *In Other Worlds: SF and the Human Imagination*, 1–8.

> human race has not already done at some time in the past, or which it is not doing now, perhaps in other countries, or for which it has not yet developed the technology. We've done it, or we're doing it, or we could start doing it tomorrow. Nothing inconceivable takes place, and the projected trends on which my future society is based are already in motion. So I think of *The Handmaid's Tale* not as science fiction, but as speculative fiction; and, more particularly, as that negative form of Utopian fiction which has come to be known as the Dystopia.[93]

It is this perceived rejection of science fiction that Le Guin reports to readers in her 2009 *Guardian* review of *The Year of the Flood*. Le Guin insists that '*The Handmaid's Tale*, *Oryx and Crake*, and *The Year of the Flood* all exemplify one of the things science fiction does, which is to extrapolate imaginatively from current trends and events to a near-future that's half prediction, half satire' and that, furthermore, Atwood is avoiding the label of science fiction because '[s]he doesn't want the literary bigots to shove her into the literary ghetto'.[94] The disagreement between Le Guin and Atwood resurfaced during a public discussion between the two writers in 2010. Atwood summarises the conclusion of this live interaction in *In Other Worlds* thus: 'In short, what Le Guin means by "science fiction" is what I mean by "speculative fiction," and what she means by "fantasy" would include some of what I mean by "science fiction." So that clears it all up, more or less.'[95] Atwood will allow her works to be called science fiction as long as the term allows for the elements found therein to be possible. Thus, by discussing *The Handmaid's Tale*, *Oryx and Crake*, and *The Year of*

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[93] Margaret Atwood, 'Writing Utopia', in *Moving Targets: Writing with Intent: 1982-2004* (Toronto: Anansi, 2004), 102–3.

[94] Ursula K. Le Guin, 'Review of *The Year of the Flood* by Margaret Atwood', *The Guardian*, 29 August 2009, http://www.theguardian.com/books/2009/aug/29/margaret-atwood-year-of-flood. For another definition of science fiction by Le Guin's, especially one contrasting science fiction and fantasy, see Le Guin, 'Do-It-Yourself Cosmology'.

[95] Atwood, *In Other Worlds: SF and the Human Imagination*, 7. According to Atwood, this discussion took place in Portland, Oregon, on September 23, 2010, as part of the Portland Arts and Lectures series. See Atwood, 11. Note 6.

the Flood together in a book on science fiction, Atwood appears to be reconciling herself to the science fiction genre, although she would prefer to more specifically call them 'ustopias'.[96]

Following the discussion of genre above, Atwood's *MaddAddam* trilogy will be considered part of the science fiction genre within this thesis. Not only has Atwood discussed her novels as such in a non-fiction text concerning science fiction, but she has also been included in science fiction references, such as *The Science Fiction Handbook*;[97] therefore, it is not disingenuous to speak of the *MaddAddam* trilogy as science fiction. Such a choice reflects the reception of the text, as well as Atwood's clarified authorial intent. Furthermore, paradigmatic studies within literary criticism aptly describe and help explicate the trilogy, such that the genre is used as a tool for understanding rather than a means of classification. However, reference to the trilogy as science fiction is not intended to deny that the texts are also helpfully considered novels, ustopias, or examples of other possible genres.[98] Genres, often considered important for discussion of any text, are neither clearly defined nor fixed. This is particularly true of science fiction. Rather than being a question of

[96] Atwood, *In Other Worlds: SF and the Human Imagination*, 66. This term is coined by Atwood to combine 'utopia' with 'dystopia'.

[97] Booker and Thomas, *The Science Fiction Handbook*, 141–42. Atwood is listed as a representative science fiction author, although the authors state that she is 'a writer not typically associated with the genre'.

[98] Two theoretical genres that could help with critically engaging the *MaddAddam* trilogy are *slipstream*, as defined by Bruce Sterling, and *actualism*, as defined by Susan Strehle. Slipstream describes texts of postmodern sensibility that make the reader feel very strange and engages cultural studies. Actualism describes texts that portray the human interpretation of a non-human reality redefined by contemporary physics, with six defining aspects: discontinuous, statistical, energetic, relative, subjective, and uncertain. See Bruce Sterling, 'Slipstream', *Science Fiction Eye* 1, no. 5 (1989): 77–80; Bruce Sterling, 'Slipstream 2', *Science Fiction Studies* 38, no. 1 (2011): 6–10, https://doi.org/10.5621/sciefictstud.38.1.0006; Susan Strehle, *Fiction in the Quantum Universe* (Chapel Hill, North Carolina: The University of North Carolina, 1992).

classification, genres may be better understood as actions or tools that a text employs to achieve certain goals, such as creating 'cognitive estrangement'[99] within the reader or emulating a world in which one is made to 'feel very strange'[100] because of its 'discontinuity' or 'uncertainty'.[101] Atwood's texts have been given multiple generic labels, yet the *MaddAddam* trilogy may be appropriately treated as science fiction. Furthermore, sufficient critical work has been done in the science fiction field so that many science fiction studies are capable of incorporating, or relating themselves to, related genres.

Connecting with extra-textual reality

According to Amanda Cole, 'Atwood's use of extra-textual material … demonstrates an abstruse desire to manipulate the novel past what is generally accepted as the perceived limitations, or boundaries, of authorial influence.'[102] This extra-textual material includes her epigraphs and detailed acknowledgement sections in her books, websites dedicated to *Oryx and Crake* (www.oryxandcrake.com)[103] and *The Year of the Flood* (www.yearoftheflood.com), interviews and talks given concerning the texts, musical accompaniment for *The Year of the Flood* book tour, and critical commentary on her works. Although some may

[99] Suvin, 'On the Poetics of the Science Fiction Genre', 372.
[100] Sterling, 'Slipstream', 78.
[101] Strehle, *Fiction in the Quantum Universe*, 8.
[102] Amanda Cole, 'In Retrospect: Writing and Reading *Oryx and Crake*', *Philament: An Online Journal of the Arts and Culture* 6 (July 2005): n.p., http://www.philamentjournal.com/wp-content/uploads/2016/06/ACole_In-Retrospect.pdf.
[103] Website available through an archive; see https://web.archive.org/web/20060615193258/http://www.randomhouse.com/features/atwood/index.html. The website is complete with pop-ups, advertising for Compounds from *Oryx and Crake*.

read the novels as mere satires, akin to *Gulliver's Travels*,[104] such extra-textual material brings doubt to this interpretation, as Atwood seeks to connect her fictional work with the extra-textual world.[105] This section will provide an overview of this material with specific focus on epigraphs and acknowledgements within the books, websites dedicated to *Oryx and Crake* and *The Year of the Flood*, and four published commentaries written by Atwood related to the trilogy.

Atwood explicitly acknowledges connections between her work and the world beyond the texts. In the acknowledgements section to *Oryx and Crake*, Atwood writes, 'Deep background was inadvertently supplied by many magazines and newspapers and non-fiction science writers encountered over the years.'[106] In *The Year of the Flood*, Atwood continues to acknowledge the link between her fictional texts and non-fictional reality:

> *The Year of the Flood* is fiction, but the general tendencies of many of the details in it are alarmingly close to fact …. The Gardeners themselves are not modelled on any extant religion, though some of their theology and practices are not without precedent. Their saints have been chosen for their contributions to those areas of life dear to the hearts of the Gardeners; they have many more saints, as well, but they are not in this book. The clearest influence on Gardener hymn lyrics is William Blake, with an assist from John Bunyan and also from *The Hymn Book of the Anglican Church of Canada and the United*

[104] See Canavan, 'Hope, But Not for Us: Ecological Science Fiction and the End of the World in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*', 155. However, in note 24 of this paper, Canavan admits a worthy challenge to such a reading: 'I want to thank Greg Garrard for challenging me on this point, particularly in bringing to my attention the fact that Atwood was accompanied on her book tour for *Year of the Flood* by a gospel choir singing the Gardeners' hymns. Garrard suggests that the book may, in fact, be a serious attempt to create a Darwinist ecological religion—making the novel quite literally a Bible for the world to come after all.' See Canavan, 157–58.

[105] Atwood is not alone in arguing for the realism in the trilogy. Chris Vials makes the following comment: 'Speculative fiction [such as Atwood's] … relies on imagination and projection, but unlike science fiction proper, its plots and settings hue much more closely to empirically observable, social and technological trends. It is arguably closer to the project of literary realism.' See Vials, 'Margaret Atwood's Dystopic Fiction and the Contradictions of Neoliberal Freedom', 239.

[106] Margaret Atwood, 'Acknowledgements', in *Oryx and Crake*, First Anchor Books Edition (New York: Random House, 2004), 376.

> *Church of Canada.* Like all hymn collections, those of the Gardeners have moments that may not be fully comprehensible to non-believers …. Anyone who wishes to use any of these hymns for amateur devotional or environmental purposes is more than welcome to do so.[107]

Atwood claims, here, that her fictional elements are 'alarmingly close to fact' because they 'are not without precedent'; however, she also seems to suggest that certain fictional elements, such as the God's Gardeners, exist beyond the confines of her fictional work ('they [their saints] are not in this book') and that some of their practices and beliefs are capable of moving from fiction to reality (using hymns that 'may not be fully comprehensible to non-believers' for non-fiction 'devotional or environmental purposes'). Atwood also includes an interesting thanks to her husband, 'with whom I've celebrated so many April Fish, Serpent Wisdom, and All Wayfarers' Feasts'.[108] It is as if the God's Gardeners and their religion occupy a gap-space between fiction and reality; perhaps they exist only within Atwood's mind or the reader's mind, but they are presented as existing entities that—like some of their saints—are 'not in this book'. Furthermore, Atwood's acknowledgement of her husband's company through Gardener festivals, suggests that perhaps the Gardeners reflect Atwood's own lived beliefs and practices. One might also, therefore, wonder if the saints are dear to the Gardeners or to Atwood herself. The acknowledgements to *MaddAddam* merely reinforce the connections made with the two previous books: 'Although *MaddAddam* is a work of fiction, it does not include any technologies or biobeings that do not already exist, are not under construction, or are not possible in

[107] Margaret Atwood, 'Acknowledgements', in *The Year of the Flood*, First Anchor Books Edition (New York: Random House, 2010), 433.

[108] Atwood, 434.

theory.'[109] The above statements from the acknowledgement sections of all three books may lead the reader back to the first epigraph of *Oryx and Crake*: 'I could perhaps like others have astonished you with strange improbable tales; but I rather chose to relate plain matter of fact in the simplest manner and style; because my principle design was to inform you, and not to amuse you.'[110] This epigraph from Jonathan Swift's *Gulliver's Travels* may seem to suggest that the following texts are to be read as satirical allegories;[111] however, Atwood's acknowledgements sections tend to emphasise the closing words: 'my principle design was to inform you, and not to amuse you'. Perhaps ironically, the trilogy is indeed amusing, with its regular use of humour, as is *Gulliver's Travels*. The reader is thus left with ambiguity between epigraph and concluding acknowledgements, and further extra-textual material fails to remove such ambiguity completely.

The acknowledgement sections for the first two books direct readers to respective book-related websites. Some of Atwood's research sources for *Oryx and Crake* are revealed on the book's archived website, including headlines from journals, such as *Scientific American*, *The New York Times*, *The Washington Post*, and *The Globe*

[109] Margaret Atwood, 'Acknowledgements', in *MaddAddam*, First Anchor Books Edition (New York: Random House, 2014), 393.

[110] Atwood, *Oryx and Crake*, xiii.

[111] See Canavan, 'Hope, But Not for Us: Ecological Science Fiction and the End of the World in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*'.

and Mail,[112] and a booklist of nonfiction recommendations for the keen reader.[113] Also available is an essay entitled 'Writing *Oryx and Crake*',[114] which, in the critique of Amanda Cole, 'informs the reader of how Atwood would like *Oryx and Crake* to be received'.[115] The website dedicated to *The Year of the Flood* remains active and is linked with Margaret Atwood's main website (margaretatwood.ca). As with the previous book's website, *The Year of the Flood* website contains a recommended reading list, this time much longer and opening with the following introduction: 'Here are some of the books it is thought may have influenced the founders of the God's Gardeners in their youth, before they discarded electronic modes of communication and severely limited their use of paper products.'[116] The blurring of fiction and reality, here, is further complicated by directions on how publishers can add books to the list (are the books influential to the God's Gardeners, Margaret Atwood, or interested real-world publishers?). The site also contains information on the music of the God's

[112] Margaret Atwood, 'Headlines', *Margaret Atwood: Oryx and Crake*, accessed 29 November 2016, https://web.archive.org/web/20060617225126/http://www.randomhouse.com/features/atwood/oryxandcrake/headlines.html. Her research is well-documented and has been archived in the Fisher Library in Toronto (http://fisher.library.utoronto.ca/margaret-atwood-papers). According to Coral Ann Howells, who has reviewed the material, 'The contents of her famous Brown Box . . . contain a list of Alphabetical Research files on such topics as Animals-Extinction, Biotechnology, Climate Change, Nanotechnology, Stem Cell Research, as well as files on Slavery, Video Games, and warnings about bioterror and bioerror'. Howells, 'Margaret Atwood's Dystopian Visions: *The Handmaid's Tale* and *Oryx and Crake*', 171.

[113] Margaret Atwood, 'Related Links', *Margaret Atwood: Oryx and Crake*, accessed 29 November 2016, https://web.archive.org/web/20060614201951/http://www.randomhouse.com/features/atwood/oryxandcrake/links.html.

[114] Margaret Atwood, 'Essay', *Margaret Atwood*, accessed 29 November 2016, https://web.archive.org/web/20060617224426/http://www.randomhouse.com/features/atwood/essay.html. This was also published in a collection of Atwood's prose, which is the source I use for citations. See Atwood, 'Writing *Oryx and Crake*'.

[115] Cole, 'In Retrospect: Writing and Reading *Oryx and Crake*'.

[116] Margaret Atwood, 'Reading List', *The Year of the Flood*, 2016, accessed 29 November 2016, http://yearoftheflood.com/reading-list/.

Gardeners, as composed by Orville Stoeber,[117] lists of environmentally-friendly[118] and not-for-profit organisations,[119] and links to various green/environmentally-friendly 'things of interest'.[120] Atwood's extensive site, based upon the God's Gardener way of life, suggests that perhaps *The Year of the Flood* could be considered a modern-day Green Bible, for, as Atwood has claimed elsewhere, 'unless environmentalism becomes a religion it's not going to work'.[121] Atwood's extra-textual material related to the trilogy may aid in the reification of such a religion. The third instillation of the trilogy, *MaddAddam*, has no website of its own beyond a page on Atwood's author site, advertising the entire trilogy and its praise.

Atwood's critical commentary on her works is not unique to the *MaddAddam* trilogy; however, her stance on the science fiction genre label has forced her to remark explicitly on these texts, along with *The Handmaid's Tale*.[122] Reflecting on the utopian genre in 1989, Atwood stated, '*The Handmaid's Tale* … is set in the future. This conned some people into believing it is science fiction, which, to my mind, it is not.'[123] I have already recounted above, in the section on genre, Atwood's definitions of speculative fiction and science fiction, including her insistence on the term

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[117] Orville Stoeber, 'How the Music Came to Be: Hymns of the God's Gardeners: Their Musical History', *The Year of the Flood*, [2009] 2016, accessed 29 November 2016, http://yearoftheflood.com/how-the-music-came-to-be/. See also, Orville Stoeber, *Hymns of the God's Gardeners: Lyrics from The Year of the Flood*, Audio CD (London: Bloomsbury Publishing, 2009).

[118] Margaret Atwood, 'Environmental Helpers', *The Year of the Flood*, 2016, accessed 29 November 2016, http://yearoftheflood.com/environmental-helpers/.

[119] Margaret Atwood, 'Not-for-Profit Organizations', *The Year of the Flood*, 2016, accessed 29 November 2016, http://yearoftheflood.com/not-for-profit-organizations/.

[120] Atwood, Margaret, 'Things of Interest', *The Year of the Flood*, 2016, accessed 29 November 2016, http://yearoftheflood.com/things-of-interest/.

[121] Erica Wagner, 'The Conversation: Margaret Atwood', *The Times*, 15 August 2009, sec. The Review, 3.

[122] Although *The Handmaid's Tale* and the *MaddAddam* trilogy contain different storyworlds, they are often discussed together by Atwood, her readers, and her critics.

[123] Atwood, 'Writing Utopia', 102.

speculative fiction for her work and my choice to consider the *MaddAddam* trilogy science fiction. However, it is important in this section on extra-textual material to discuss Atwood's critique of her own literature in more depth. In a speech about writing utopias, Atwood addresses the balance between the concepts presented in her novels and human perspective within the story:

> There is, as I have said, nothing in the book without a precedent. But this material in itself would not constitute a novel. A novel is always the story of an individual, or several individuals, never the story of a generalized mass. So the real problems in the writing of *The Handmaid's Tale* were the same as the problems involved in the writing of any novel: how to make the story real at a human and individual level. The pitfalls that Utopian writing so frequently stumbles into are the pitfalls of disquisition. The author gets too enthusiastic about sewage systems or conveyor belts, and the story grinds to a halt while the beauties of these are explained. I wanted the factual and logical background to my tale to remain background; I did not want it usurping the foreground.[124]

This comment by Atwood holds two important points for reading the *MaddAddam* trilogy. First, the emphasis upon the human and individual level is an aspect of novel writing and is apparent in the heavy use of character-limited narration in the *MaddAddam* trilogy. Second, the lack of detailed science and technology explanations in the trilogy do not indicate a lack of scientific presence in the text or knowledge by Atwood. Although Atwood extrapolates beyond today's scientific and technological capabilities, she insists that the processes involved, whilst hidden beyond the story of characters, are factually and logically possible.

Atwood composed 'Writing *Oryx and Crake*', the essay available on the *Oryx and Crake* website, in January 2003, prior to the release of *Oryx and Crake* later that

[124] Atwood, 111.

year. In the essay, Atwood shares the immediate inspiration for the novel: visiting Aboriginal cave complexes and observing red-necked crakes.[125] Atwood also acknowledges her childhood surrounded by scientists, both relatives and her father's colleagues, and recreational scientific reading 'of the Stephen Jay Gould or *Scientific American* type'; '[s]o I'd been clipping small items from the back pages of newspapers for years, and noting with alarm that trends derided ten years ago as paranoid fantasies had become possibilities, then actualities'.[126] Atwood also 'wrote several chapters of this book on a boat in the Arctic, where I could see for myself how quickly the glaciers were receding'.[127] She almost stopped writing the book after September 11, 2001: 'It's deeply unsettling when you're writing about a fictional catastrophe and then a real one happens. I thought maybe I should turn to gardening books—something more cheerful. But then I started writing again, because what use would gardening books be in a world without gardens, and without books? And that was the vision that was preoccupying me.'[128] Comparing the book to *The Handmaid's Tale*, Atwood states, '*Oryx and Crake* is a speculative fiction, not a science fiction proper …. [I]t invents nothing we haven't already invented or started to invent …. The *what if* of *Oryx and Crake* is simply, *What if we continue down the road we're already on? How slippery is the slope? What are our saving graces? Who's got the will to stop us?*'.[129] Atwood concludes, 'the world of *Oryx and Crake* is what worries me right now. It's not a question of our inventions—all human inventions are merely tools—

[125] Atwood, 'Writing *Oryx and Crake*', 328.
[126] Atwood, 328–29.
[127] Atwood, 329.
[128] Atwood, 329.
[129] Atwood, 330. Atwood's italics.

but of what might be done with them; for no matter how high the tech, *Homo sapiens sapiens* remains at heart what he's [*sic*] been for tens of thousands of years—the same emotions, the same preoccupations.'[130] In such a short essay, Atwood provides prodigious extra-textual information that influences how the reader interprets her work. She highlights the factuality of the scientific background (referring to interactions with scientists and newspaper clippings), notes the trend from fantasies to possibilities to actualities in science and technology, reveals the environmental anxieties behind the text (glaciers and gardens), reveals the *what if* warning of a typical dystopia, and points to the potential danger in what humans do with science rather than in the science itself ('It's not a question of our inventions … but of what might be done with them'). The story is transformed from a fictional story to an exposition and warning about our actual world. Although this is arguably accomplished in other texts without the aid of their authors, the point being made here is that Atwood has stepped beyond her fictional text to inform her readers of the purpose of her text beyond its textual storyline and characters.

In the year following the publication of *Oryx and Crake*, Atwood published a critical paper entitled '*The Handmaid's Tale* and *Oryx and Crake* in Context'.[131] Atwood's purpose in the essay is to address the genre context of the two books, which Atwood admits is a difficult project: '[G]enres may look hard and fast from a distance, but up close it's nailing jelly to a wall.'[132] Atwood discusses the literary

[130] Atwood, 330.

[131] The paper originated as the keynote address at the Academic Conference on Canadian Science Fiction and Fantasy in Toronto in August 2003. See Margaret Atwood, '*The Handmaid's Tale* and *Oryx and Crake* "In Context"', *PMLA* 119, no. 3 (2004): 513.

[132] Atwood, 513.

history of science and speculative fiction, noting that they offer different narratives from the socially realistic novel.[133] Atwood claims that *The Handmaid's Tale* is a classic dystopia, in line with George Orwell's *1984*;[134] however, *Oryx and Crake* is different:

> [I]t is not a classic dystopia. Though it has obvious dystopian elements, we don't really get an overview of the structure of the society … We just see its central characters living their lives within small corners of that society, much as we live ours. What they can grasp of the rest of the world comes to them through television and the Internet, and is thus suspect, because edited. I'd say instead that *Oryx and Crake* is … an adventure romance—that is, the hero goes on a quest—coupled with a Menippean satire, the literary form that deals with intellectual obsession.[135]

Once again, Atwood notes the focus upon the individual, human perspective of the novel. Atwood concludes this paper with a note on imagination: 'human imagination drives the world' and '[l]iterature is an uttering, or outering, of the human imagination'; therefore '[u]nderstanding the imagination is no longer a pastime or even a duty but a necessity, because increasingly, if we can imagine something, we'll be able to do it'.[136] Here Atwood creates a link between all of literature and the extra-textual world, with an imperative for writing, reading, and analysing literature. It is to science fiction and the human imagination that Atwood will dedicate an entire non-fiction book years later, in a continued attempt to settle her coupled unease and connection with the genre.

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[133] Atwood, 515–16.
[134] Atwood, 516.
[135] Atwood, 517.
[136] Atwood, 517.

I have already discussed the introduction to Atwood's *In Other Worlds: SF and the Human Imagination*, in which Atwood relates the public dispute between herself and Ursula K. Le Guin over the label of science fiction for Atwood's *The Handmaid's Tale*, *Oryx and Crake*, and *The Year of the Flood*; however, we have yet to explore the rest of the book. Atwood claims that the book, which expands upon ideas previously explored in '*The Handmaid's Tale* and *Oryx and Crake* in Context', 'is an exploration of my own lifelong relationship with a literary form, or forms, or subforms, both as reader and as writer'.[137] The text presents a literary autobiography for Atwood, selections of science fiction-related prose originally published elsewhere, and collection of her own shorter works that could be considered science fiction. Her second chapter, 'Burning Bushes: Why Heaven and Hell Went to Planet X', discusses links between religion, myths, and science fiction.[138] In her third chapter, 'Dire Cartographies: The Roads to Ustopia', Atwood discusses her unfinished doctoral thesis about nineteenth- and early twentieth-century fictions she collected under the label 'The Metaphysical Romance', as well as her three novels that could be similarly labelled: *The Handmaid's Tale*, *Oryx and Crake*, and *The Year of the Flood*.[139] Atwood begins by defining her term ustopia: '*Ustopia* is a word I made up by combining utopia and dystopia—the imagined perfect society and its opposite—because, in my view, each contains a latent version of the other.'[140] In discussing *The Handmaid's Tale*, Atwood again emphasises the reality embedded within the fiction: 'My rules for *The*

[137] Atwood, *In Other Worlds: SF and the Human Imagination*, 1.
[138] Atwood, 38–65.
[139] Atwood, 9.
[140] Atwood, 66.

Handmaid's Tale were simple: I would not put into this book anything that humankind had not already done, somewhere, sometime, or for which it did not already have the tools.'[141] Atwood follows this pattern with *Oryx and Crake*, claiming that '[s]ince *Oryx and Crake* was published, the Chickie Nob solution has made giant strides: lab-grown meat is now a reality, though it is probably not in your sausages yet'; and with *The Year of the Flood*, discussing the God's Gardeners' avoidance of 'high-tech communications devices such as cell phones and computers on the grounds that they can be used to spy on you—which is entirely true'.[142] Atwood also notes the utopian-dystopian aspects in each book: the Crakers versus the technocracy and anarchy;[143] the God's Gardeners versus the criminal gangs and anarchic violence.[144] Atwood again discusses some of the inspirations for her stories; however, she claims that such inspiration is located, ultimately, within the questions people are increasingly asking themselves: 'How badly have we messed up the planet? Can we dig ourselves out? What would a species-wide self-rescue effort look like if played out in actuality? And also: Where has utopian thinking gone? Because it never totally disappears: we're too hopeful a species for that.'[145] Atwood concludes by discussing the specific utopianism introduced in *Oryx and Crake*:

> It's interesting to me that I situated the utopia-facilitating element in *Oryx and Crake* not in a new kind of social organization or a mass brainwashing or soul-engineering program but inside the human body. The Crakers are well behaved from the inside out not because of their legal system or their government or some form of intimidation but because they have been designed to be so. They can't choose

[141] Atwood, 88.
[142] Atwood, 92–93.
[143] Atwood, 91.
[144] Atwood, 93.
[145] Atwood, 94.

> otherwise. And this seems to be where ustopia is moving in real life as well: through genetic engineering, we will be able to rid ourselves of inherited diseases, and ugliness, and mental illness, and aging, and … who knows?[146]

This is not to entirely shun genetic engineering, however; for Atwood concludes that 'of course we should try to make things better, insofar as it lies within our power. But we should probably not try to make things perfect, especially not ourselves, for that path leads to mass graves. We're stuck with us, imperfect as we are; but we should make the most of us. Which is about as far as I myself am prepared to go, in real life, along the road to ustopia'.[147] Not only has this non-fiction book by Atwood allowed readers to appropriately classify *Oryx and Crake* and *The Year of the Flood* as science fiction, but it has also provided extensive extra-textual material with which the reader can discern Atwood's intended interpretation of her work, rather than allow the reader to have his or her own interpretation. The reader is once again instructed as to the environmental, scientific, technological, and sociological concerns behind the texts. The reader is made aware of the connections between fiction and reality (Chickie Nobs, electronically-enabled spyware, and genetic engineering) and of Atwood's own personal convictions as to how far society should go (improve but do not perfect). By doing this, Atwood eliminates attempts by readers to use her texts to advocate for actions beyond that which she may personally endorse. Atwood's extra-textual material, whilst further exposing the *MaddAddam* world to readers and linking it to extra-textual reality beyond the boundaries of the texts, also ties the text

[146] Atwood, 94–95.
[147] Atwood, 95.

closely to Atwood as author, such that she maintains tight control over interpretation rather than allowing readers free interpretation and co-creation of the storyworld.

This section on connecting the *MaddAddam* trilogy with extra-textual reality has presented the extra-textual material provided by Margaret Atwood. Through epigraphs, acknowledgements, book-related websites, and critical prose, Atwood has sought to inform readers of the texts' inspirations, research, and intended interpretations. Furthermore, Atwood has heavily suggested desired responses to the novels; primarily that of environmental awareness and activism. Although these actions by Atwood may be rare for or questionable of an author of fiction, they have nonetheless been taken by Atwood, and her extra-textual material can be used to aid in critically reading the *MaddAddam* trilogy.

Conclusion

This chapter has introduced the case study texts of the *MaddAddam* trilogy by providing a summary of the texts, a review of the scholarly literature on the trilogy, and resources for critically reading and analysing the trilogy, including a consideration of genre and an exploration of the connection between fictional text and extra-textual reality. The next chapter will provide an example of an explanatory approach to the *MaddAddam* trilogy. The explanatory method is an approach within science-religion-and-literature that uses particular texts. The explanatory approach is considered a science-and-religion-in-literature approach (rather than literature-in-science-and-religion) because it is a method that uses a literary work to explain a

science-and-religion topic. Such topics are shown to be part of the science-and-religion field by their existence in scholarly literature.[148]

[148] For example, see Barbour, *Religion and Science: Historical and Contemporary Issues: A Revised and Expanded Edition of* Religion in an Age of Science; Clayton, *The Oxford Handbook of Religion and Science*; Christopher Southgate, ed., *God, Humanity and the Cosmos: A Textbook in Science and Religion*, Third Edition (New York: T&T Clark International, 2011); Brooke, *Science and Religion: Some Historical Perspectives*.

Chapter 7

Explanatory Approach to the *MaddAddam* Trilogy: Three Examples

Introduction

The purpose of this chapter is to provide examples of an explanatory approach within the science-religion-and-literature field. Although explanatory approaches were given as examples in Chapter 2, this chapter applies the approach to the *MaddAddam* trilogy in order to provide contrasting examples with the two revelatory examples to follow in Chapters 8 and 9.

The explanatory approach uses particular texts. It is possible for the explanatory method to be applied to a single text, which is what distinguishes it from authorial and thematic approaches. The explanatory text can refer to other writings by the author, as well as studying themes within the text; both of these techniques are common but neither is necessary. The explanatory method is an ideal contrast with the proposed revelatory method, because the revelatory method can, similar to the explanatory method, use only one text by one author. The major contrast between the explanatory and revelatory methods is that the explanatory method is a science-and-religion-in-literature approach, since it is interested in using particular literary texts to explain a science-and-religion concept, topic, theme, or problem. The revelatory method seeks to reveal something new (through appeal to literature) to the science-and-religion field; therefore, it is considered a literature-in-science-and-religion approach.

The explanatory approach in this chapter will consider three different science-and-religion themes found within the *MaddAddam* trilogy. The three themes are bioengineering and spirituality, eco-theology, and religious or spiritual experiences, chosen due to their relevancy to the plot, themes, and/or characters of the *MaddAddam* trilogy. The explanatory method will use the *MaddAddam* trilogy as a medium through which to explore and explain these themes.

Bioengineering and Spirituality

In a 2006 interview on faith and reason, American journalist Bill Moyers asked Margaret Atwood the following question: 'If you were asked to design a new human being as an improvement on the current model, would you eliminate the hunger for God?' Rather than answer the question, Atwood retorted: '*[C]ould* you eliminate such a thing?'[1] Atwood is not convinced that such an elimination is possible. However, in *Oryx and Crake*, the scientist Crake attempts to do that very thing. Crake believes that he has successfully eliminated the 'cluster of neurons' that is God in his bio-engineered, human-like Crakers. *Oryx and Crake* is the first instalment in Atwood's *MaddAddam* trilogy, which tells the multivalent story of an apocalyptic event caused by a human-targeted, haemorrhagic virus that wipes out most of humanity. It is revealed at the end of *Oryx and Crake*, that this virus was also engineered by Crake, and that the Crakers are the scientist's improved replacement species for humankind.

[1] Atwood, Faith and Reason: Margaret Atwood and Martin Amis. Emphasis original. Transcript available at billmoyers.com. See BillMoyers.com Staff, 'Faith and Reason: Margaret Atwood & Martin Amis', Moyers & Company, 28 July 2006, http://billmoyers.com/content/margaret-atwood-martin-amis-on-faith-reason/.

This section on bioengineering and spirituality will explore the ethics of genetic engineering and the god-spot, using the bio-engineered status and subsequent religious development of the Crakers as an impetus for discussion. The ethics of genetic engineering and the relation between God and the mind are both topics studied within the science-and-religion field, which corresponds with the explanatory method of this chapter.[2]

Bioethics: genetic engineering

The first book of the trilogy, *Oryx and Crake*, was published in 2003. Scientifically, the early 2000s brought about a completion of the Human Genome Project (HGP), which was as a whole 'a multinational, long-term, competitive and cooperative, multibillion-dollar (yen, franc, mark, etc.) effort to represent exhaustively … the totality of information in the species genome'.[3] A draft of the genome was completed in mid-2000 and published in early 2001, and in 2003, an accurate and complete sequence was finished, two years ahead of the scheduled completion in 2005.[4] This project was highly discussed in the public sphere and

[2] For an example of science-and-religion interest in the ethics of genetic engineering, see Celia Deane-Drummond, 'Biotechnology: A New Challenge to Theology and Ethics', in *God, Humanity and the Cosmos*, ed. Christopher Southgate, 3rd ed. (London: Bloomsbury, 2011), 390–419. For an example of science-and-religion interest in God and the mind, see Fraser Watts and Geoff Dumbreck, 'Psychology and Theology', in *God, Humanity and the Cosmos*, ed. Christopher Southgate, 3rd ed. (London: Bloomsbury, 2011), 204–22.

[3] Donna Haraway, *Modest_Witness@Second_Millennium.FemaleMan©_Meets_OncoMouse™: Feminism and Technoscience* (New York: Routledge, 1997), 246.

[4] John Bryant and Peter Turnpenny, 'Genetics and Genetic Modification of Humans: Principles, Practice and Possibilities', in *Brave New World? Theology, Ethics and the Human Genome*, ed. Celia Deane-Drummond (London: T&T Clark, 2003), 9–10; 'A Brief History of the Human Genome Project' (National Human Genome Research Institute, 8 November 2012), https://www.genome.gov/12011239/a-brief-history-of-the-human-genome-project/; 'The Completion of the Sequence and Remaining Goals' (National Human Genome Research Institute, 27

President Bill Clinton addressed the world from the White House when the draft was completed.[5] Meanwhile, the institution of religion was declining. In 2002, sociologist Steve Bruce published his influential book on the phenomenon, *God is Dead: Secularization in the West*, arguing for the decline of religion in the face of societal progress.[6] However, other sociologists of religion, such as Paul Heelas and Linda Woodhead, argued for the survival of alternative forms of spirituality in the face of the decline of organised religion.[7] Atwood was writing at a time of scientific explanatory success and religious decline in society.[8] This brief exploration of the ethics of genetic engineering will focus on the concept of designer babies, due to its correlation with the Crakers in *Oryx and Crake.* When Crake introduces the Crakers to Jimmy, he claims that they are floor-models, representing the genetic possibilities for a potential child: 'They'd be able to create totally chosen babies that would incorporate any feature, physical or mental or spiritual, that the buyer might wish to select.'[9] In this case the buyer may not be an infertile parent but, rather, the leader of an entire government.

December 2012), https://www.genome.gov/12011241/the-completion-of-the-sequence-and-remaining-goals/. For publication of draft, see Eric S. Lander et al., 'Initial Sequencing and Analysis of the Human Genome', *Nature* 409, no. 6822 (15 February 2001): 860–921, https://doi.org/10.1038/35057062.

[5] 'Human Genome Announcement at the White House (2000)' (The White House: National Human Genome Research Institute, 26 June 2000), https://www.youtube.com/watch?v=slRyGLmt3qc.

[6] See Bruce, *God Is Dead: Secularization in the West*.

[7] See Heelas and Woodhead, *The Spiritual Revolution: Why Religion Is Giving Way to Spirituality*.

[8] One might think, here, of August Comte's proposal that all societies move through three stages of development: theological/religious, metaphysical, and positive/scientific. See Auguste Comte and Harriet Martineau, *The Positive Philosophy of Auguste Comte Freely Translated and Condensed by Harriet Martineau in Two Volumes*, vol. 1, Chapman's Quarterly Series 3 (London: John Chapman, 1853), 1–3. For original Comte text, see Auguste Comte, *Cours de Philosophie Positive*, 6 vols (Paris: Bachelier, Libraire pour les Mathématiques, Quai des Augustins, No. 55, 1830–1842).

[9] Atwood, *Oryx and Crake*, 304.

Perusing scholarly literature on the HGP and human genetics from the early 2000s, it is difficult to miss the tension between the proclaimed benefits of such research and alterations, such as cures for genetic diseases, on the one hand, and the potential abuses of such knowledge or ability, on the other. The public was informed of the positive, intended goal of such research; consider, for example, President Clinton claiming that such genetic knowledge would 'revolutionize the diagnosis, prevention and treatment of most, if not all, human diseases'.[10] However, issues related to enhancement, such as eugenics[11] and exacerbated social inequality,[12] continued to be part of the debate, despite the acknowledgement by many ethicists that the techniques for genetic enhancement (as opposed to therapeutic techniques) were not yet possible.[13] Within the fictional world of *Oryx and Crake*, therapeutic cures seem to be only an appeasing after-thought, justifying Crake's research that has made enhancements possible. For example, Crake proclaims the benefits of his research as it pertains to immunity, claiming that 'what had until now been done with drugs would soon be innate'.[14] Although Crake articulates therapeutic justifications for his research, his publicised goal is immortality—an enhancement technology

[10] 'Human Genome Announcement at the White House (2000)'.

[11] For example, see Arthur L. Caplan, 'What's Morally Wrong with Eugenics?', in *Controlling Our Destinies: Historical, Philosophical, Ethical, and Theological Perspectives on the Human Genome Project*, ed. Phillip R. Sloan (Notre Dame, Indiana: University of Notre Dame Press, 2000), 209–22; Philip Kitcher, 'Utopian Eugenics and Social Inequality', in *Controlling Our Destinies: Historical, Philosophical, Ethical, and Theological Perspectives on the Human Genome Project*, ed. Phillip Sloan (Notre Dame, Indiana: University of Notre Dame Press, 2000), 229–62; Robert Song, *Human Genetics: Fabricating the Future* (London: Darton, Longman and Todd, 2002), 41–78.

[12] For example, see Kitcher, 'Utopian Eugenics and Social Inequality'; Diane R Paul, 'Commentary on "Utopian Eugenics"', in *Controlling Our Destinies: Historical, Philosophical, Ethical, and Theological Perspectives on the Human Genome Project*, ed. Phillip R. Sloan (Notre Dame, Indiana: University of Notre Dame Press, 2000), 263–68.

[13] For example, see Song, *Human Genetics: Fabricating the Future*, 60–61; Kitcher, 'Utopian Eugenics and Social Inequality', 234–35.

[14] Atwood, *Oryx and Crake*, 304.

rather than a therapeutic one. This is a satiric and ironic inverse of the public rhetoric found in the extra-textual context of the composition of *Oryx and Crake*.

The bioethics presented in *Oryx and Crake* is a satirical comment on the challenges to ethical boundaries surrounding genetic engineering. Three challenges to bioethics are presented in the storyworld of the *MaddAddam* trilogy. First, by the time Jimmy, as focalising character, meets the Crakers, they are already viable and reproducing beings, and Crake refers to previous, unsuccessful instantiations of the engineered beings. The only recourse available to Jimmy, therefore, is searching his memories for moments when he could have stopped Crake from this path: 'How could I have missed it? Snowman thinks. What he was telling me. How could I have been so stupid? No, not stupid …. He had shut things out.'[15] As focalising character, Jimmy can reflect for readers their own sense of engaging in bioethics as non-experts and often only after a bioethical boundary seems to have been crossed. Second, *Oryx and Crake* depicts a world—prior to the apocalyptic event—that is run by neoliberalism. The society presented by the text was being driven by the market rather than any sort of care or theological ethics. Consider, for example, Jimmy's first trip into the pleeblands:

> There was so much to see—so much being hawked, so much being offered. Neon signs, billboards, ads everywhere …. The shops here were mid-to-high end, the displays elaborate. Blue Genes Day? Jimmy read. Try SnipNFix! Herediseases Removed. Why Be Short? Go Goliath! Dreamkidlets. Heal Your Helix. Cribfillers Ltd. Weenie Weenie? Longfellow's the Fellow! … People come here from all over the world—they shop around. Gender, sexual orientation, height, colour of skin and eyes—it's all on order, it can all be done or redone. You

[15] Atwood, 184.

> have no idea how much money changes hands on this one street alone.[16]

This is, once again, a satirical presentation of our non-textual world in which capitalism and the market create complications for bioethics. Third, in connection with the first challenge, Jimmy, the lone voice of bioethics in *Oryx and Crake* when readers are first introduced to the Crakers and Crake's thinking behind their creation, is not a trained ethicist, nor does he have a position of authority in society. His most clearly articulated objection is one of aesthetics, which Crake dismisses for the very reason that it is an aesthetic objection.[17] All three of these challenges exist in our society, as well, and Atwood's satirical hyperbole exposes our potential undesirable future.[18]

The god-spot

The god-spot is an extremely important topic for Crake, who is dismissive of (if not hostile toward) religion and interested in eliminating any predisposition in the Crakers toward notions of divinity. Jimmy reflects on this scientific pursuit thus: 'Crake thought he'd done away with all that [religious stuff], eliminated what he called the G-spot in the brain. *God is a cluster of neurons*, he'd maintained. It had been a difficult problem, though: take out too much in that area and you got a zombie

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[16] Atwood, 288–89.

[17] 'Caecotrophs were simply a part of alimentation and digestion, a way of making maximum use of the nutrients at hand. Any objections to the process were purely aesthetic. That was the point, Jimmy had said. Crake has said that if so it was a bad one.' Atwood, 159.

[18] For example, see Ian Sample, 'Genetically Modified Babies Given Go Ahead by UK Ethics Body', *The Guardian*, 17 July 2018, UK edition, sec. Science, https://www.theguardian.com/science/2018/jul/17/genetically-modified-babies-given-go-ahead-by-uk-ethics-body.

or a psychopath. But these people are neither.'[19] In the second book of the trilogy, *The Year of the Flood*, Crake is quoted calling God a brain mutation, linked with the FoxP2 gene, which controls activity of other genes and is linked with speech and language in humans (and singing in birds).[20] However, the irony of Crake's attempt to remove the god-spot is that the Crakers gradually develop a mythology in which they deify and worship Crake, as well as another character named Oryx. The concept of the god-spot arises throughout the trilogy—both as an obsession of Crake's and as an aspect of the religious experiences of humans.

The link between the mind and God, belief, or religion is well documented in scholarly literature. Sociobiologist E. O. Wilson claimed in his book, *On Human Nature*, originally published in 1978, that '[t]he predisposition to religious belief is the most complex and powerful force in the human mind and in all probability an ineradicable part of human nature'.[21] For Wilson, religion arises from 'the principle of natural selection acting on the genetically evolving material structure of the human brain'.[22] In his 1987 book, *Neuropsychological Bases of God Beliefs*, Michael Persinger hypothesised that unusual electrical activity in the temporal lobe, what he calls 'temporal lobe transients', creates an experience of the divine; in Persinger's

[19] Atwood, *Oryx and Crake*, 157. Italics original.

[20] See Margaret Atwood, *The Year of the Flood*, First Anchor Books Edition (New York: Random House, 2010), 316; 'FOXP2 Gene', Genetics Home Reference: Your Guide to Understanding Genetic Conditions, 2 January 2018, accessed 8 January 2018, https://ghr.nlm.nih.gov/gene/FOXP2#; Elizabeth Grace Atkinson et al., 'No Evidence for Recent Selection at FOXP2 Among Diverse Human Populations', *Cell* 174, no. 6 (2018): 1424–35, https://doi.org/10.1016/j.cell.2018.06.048. For further discussions of the links between music or singing and language, see Steven Mithen, *The Singing Neanderthals: The Origins of Music, Language, Mind and Body* (London: Weidenfeld & Nicolson, 2005); Antonio Montinaro, 'The Musical Brain: Myth and Science', *World Neurosurgery* 73, no. 5 (2010): 442–53.

[21] Wilson, *On Human Nature*, 169.

[22] Wilson, 192.

own words: 'With a single burst in the temporal lobe, people find structure and meaning in seconds. With it comes the personal conviction of truth and the sense of self-selection.'[23] Persinger's observations and theories about the temporal lobe were revisited in V. S. Ramachandran's 1998 popular science book, *Phantoms in the Brain: Human Nature and the Architecture of the Mind*. Calling the electrical circuitry of religious experience in the brain the 'God module',[24] Ramachandran claims that 'repeated electrical bursts inside the patient's brain' can 'permanently "facilitate" certain pathways and may even open new channels'; a process that 'might permanently alter … the patient's emotional inner life'.[25] Although no such experiment would be ethically acceptable, Ramachandran provocatively asks his reader, 'What would happen to the patient's personality—especially his spiritual leanings—if we removed a chunk of his temporal lobe? … Would we have performed a "Godectomy"?'[26] Geneticist Dean Hamer, perhaps better known for his theories on the genetics of sexual orientation, published a popular science book titled *The God Gene: How Faith is Hardwired into Our Genes* in 2004. Although Hamer's book was published shortly after *Oryx and Crake*, it well represents what Donna Haraway calls the 'gene fetishism' of the times.[27] Hamer focuses on the VMAT2 gene, which codes

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[23] Michael A. Persinger, *Neuropsychological Bases of God Beliefs* (New York: Praeger, 1987), 16–17.

[24] V. S. Ramachandran and Sandra Blakeslee, *Phantoms in the Brain: Human Nature and the Architecture of the Mind*, Paperback edition (London: Fourth Estate, 1999), 175.

[25] Ramachandran and Blakeslee, 180.

[26] Ramachandran and Blakeslee, 187.

[27] Haraway, *Modest_Witness@Second_Millennium.FemaleMan©_Meets_OncoMouse™: Feminism and Technoscience*, 143.

for a protein that controls brain chemicals that play a key role in emotions and consciousness, all of which he relates to human spirituality.[28]

In 2001, research by neuroscientist Andrew Newberg and psychiatrist Eugene d'Aquili was published in the popular science book *Why God Won't Go Away: Brain Science and the Biology of Belief*.[29] Newberg and d'Aquili reflect early in the book on Persinger's and Ramachandran's theories; however, they argue that 'the temporal lobe and the limbic structures within it cannot be solely responsible for the complexity and diversity of these [religious] experiences'.[30] Newberg and d'Aquili's research is based on brain scans of religious individuals taken during times of mystical experiences, a period of self-transcendence which—at its most extreme—they term 'Absolute Unitary Being'. Using their understanding of sensory association areas and cognitive operations in the brain, along with their observations of brain images, Newberg and d'Aquili claim that 'mystical experience is biologically, observably, and scientifically real'[31] and that the brain is 'working unusually but not improperly' during such experiences.[32] To complexify understandings of belief and the brain, Newberg and d'Aquili include language and myth, such that religious experience and belief are connected to human language in the brain. What Newberg and d'Aquili

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[28] Dean Hamer, *The God Gene: How Faith Is Hardwired into Our Genes* (New York: Doubleday, 2004). Similar to Ramachandran's interest in alterations to personality rather than directly to belief, Hamer's theory refers to the psychological trait of 'self-transcendence', which was put to a scale by Robert Cloninger. See Hamer, 17–38. For another example, of 'self-transcendence' in neuropsychological study, see d'Aquili and Newberg, 'The Neuropsychological Basis of Religions, or Why God Won't Go Away'.

[29] For their journal article on this research, see d'Aquili and Newberg, 'The Neuropsychological Basis of Religions, or Why God Won't Go Away'.

[30] Newberg, d'Aquili, and Rause, *Why God Won't Go Away: Brain Science and the Biology of Belief*, 193. Referring to note 12 on page 43. Newberg and d'Aquili also emphasise the role of the autonomic nervous system in creating mystical experiences.

[31] Newberg, d'Aquili, and Rause, 7.

[32] Newberg, d'Aquili, and Rause, 9.

suggest is that, although talking about a single gene or a single location or neural circuit for 'god' in the human brain may be tantalising (as it certainly was for Crake), it is extremely unlikely that belief is so simply rooted within the brain. However, regardless of this helpful complexification by Newberg and d'Aquili, the Crakers are not portrayed as initially having mystical experiences (regardless of whether or not they are caused by unusual/transcendent mental states);[33] rather, they are portrayed as listening and responding to the stories of Jimmy.

It is worth briefly mentioning another relevant topic related to belief and the mind, although tangential to the god-spot: the concept of *tabula rasa.* The concept is potentially referred to by Jimmy when he first introduces himself to the Crakers, referring to them as 'blank pages' upon which he could write anything.[34] One could

[33] There is, however, suggestion of the hardwiring of dreams and singing: 'Crake hadn't been able to eliminate dreams. *We're hard-wired for dreams*, he'd said. He couldn't get rid of the singing either. *We're hard-wired for singing.* Singing and dreams were entwined.' Atwood, *Oryx and Crake*, 352. Italics original. As part of the decade of the brain (the 1990s), research on dreaming and singing was likely among that collected by Atwood prior to the writing of *Oryx and Crake*. On dreaming, for example, consider researchers such as J. A. Hobson, Edward Pace-Schott, and Owen Flanagan, some of whom published popular-level science books on the topic. For example, see J. A. Hobson, *Dreaming as Delirium: How the Brain Goes Out of Its Mind* (Cambridge, MA: MIT Press, 1999); Owen Flanagan, *Dreaming Souls: Sleep, Dreams, and the Evolution of the Conscious Mind* (Oxford: Oxford University Press, 2000). Also see J. A. Hobson, Edward F. Pace-Schott, and Robert Stickgold, 'Dreaming and the Brain: Toward a Cognitive Neuroscience of Conscious States', *Behavioral and Brain Sciences* 23, no. 6 (2000): 793–1121; Flavio Aloe et al., 'The Brain Decade in Debate: VII. Neurobiology of Sleep and Dreams', *Brazilian Journal of Medical and Biological Research* 34, no. 12 (2001): 1509–19; Pace-Schott, 'Dreaming as a Story-Telling Instinct'. I have already commented on singing in an earlier footnote; however, of further note is that anthropologists note connections between dreaming and singing in their ethnographies. For example, see Robin Ridington, 'Beaver Dreaming and Singing', *Anthropologica* 13, no. 1/2 (1971): 115–28; Bernd Brabec de Mori, 'About Magical Singing, Sonic Perspectives, Ambient Multinatures, and the Conscious Experience', *Indiana* 29 (2012): 73–101. For an example put to verse, see Muriel Rukeyser, 'The Dream-Singing Elegy', *The Kenyon Review* 6, no. 1 (1944): 59–63. One Atwood critic links this hard-wiring to narrative as well: 'Through storytelling he [Snowman] teaches the Crakers the rudiments of symbolic thinking. And the Crakers love his stories, which makes us wonder if the primitive human brain is hard-wired not just for dreaming and singing as Crake has discovered, but for narrative as well.' Howells, 'Margaret Atwood's Dystopian Visions: *The Handmaid's Tale* and *Oryx and Crake*', 171. Research on the brain and narrative was given overview in Chapter 5.

[34] Atwood, *Oryx and Crake*, 349.

explore whether Crake created an instance of *tabula rasa* through his genetic engineering of the Crakers. However, to focus on the answer to that question is to miss the literary tension created by the fact that Crake did not intend to engineer a neutral *tabula rasa*, but rather a definite lack of religiosity—an attempt that fails. The text, therefore, seems to merely return readers to the tension between nature (Crake's engineering) and nurture (Oryx's teaching, Jimmy's storytelling, and the experience of the Crakers once they leave Paradice).[35]

Conclusion

In this section we identified a science-and-religion theme (bioengineering and spirituality) that was also found within the *MaddAddam* trilogy—an unsurprising theme to find there given Atwood's interest in this aspect of human nature and society, as revealed through her extra-textual interviews and non-fiction writings. Discussion of the ethics of genetic engineering and the god-spot is given explanatory support by the *MaddAddam* trilogy. The literary text becomes a medium through which to explore and explain the implications of research or theorisation at the intersection of bioengineering and spirituality. Next, I will model the explanatory approach with the science-and-religion theme of eco-theology.

[35] For examples of conceptual discussion, see Theodosius Dobzhansky, 'The Myths of Genetic Predestination and of Tabula Rasa', *Perspectives in Biology and Medicine* 19, no. 2 (1976): 156–70; Charles Lumsden, 'Cultural Evolution and the Devolution of Tabula Rasa', *Journal of Social and Biological Structures* 6, no. 2 (1983): 101–14; Michael E. Cavanagh, 'Moral Imperviousness and the Tabula Rasa Fallacy: A Contribution From the Neurosciences', *Journal of College and Character* 7, no. 6 (2006): 1–12, https://doi.org/10.2202/1940-1639.1202; Justin L. Barrett and Roger Trigg, 'Cognitive and Evolutionary Studies of Religion', in *The Roots of Religion: Exploring the Cognitive Science and Religion*, ed. Justin L. Barrett and Roger Trigg (Farnham: Ashgate, 2014), 1–15.

Eco-theology

In a 2009 interview published in *The Times* concerning *The Year of the Flood*, Margaret Atwood commented on the book's green religious cult, stating that 'unless environmentalism becomes a religion it's not going to work'.[36] Atwood then goes further to describe how the environmentalism movement itself has religious tones: 'I think it has that element of faith, and when you meet all the people doing things on behalf of this cause, you think this is a lot like dedicating yourself as a nun must have been in medieval times, going out and teaching kids to make gardens. The [Twin T]owers are toppling, and you are doing this. You must believe that come what may this is the thing to do.'[37] Atwood herself is an avid conservationist, being a joint honorary president of BirdLife's Rare Bird Club alongside her partner Graeme Gibson.[38] Atwood's book tour for *The Year of the Flood* redefined the traditional book tour, collaborating with composer Orville Stoeber to combine music and theatre to bring key characters from the book to life. Performing as a narrator, Atwood worked with local singers, choirs, and actors, ensuring a low-carbon-footprint for the tour. The tour has been captured by Ron Mann in the documentary *In the Wake of the Flood*.[39]

Within two years prior to the publication of Atwood's *The Year of the Flood*, two books on the interaction between religion and ecology were published: *EcoSpirit:*

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[36] Wagner, 'The Conversation: Margaret Atwood', 3.

[37] Wagner, 3.

[38] 'Rare Bird Club', *BirdLife International*, last modified 2018, https://www.birdlife.org/rare-bird-club.

[39] Ron Mann, *In the Wake of the Flood*, Documentary (Sphinx Productions, 2010). Also see John Fanshawe, 'From Ground-Breaking Book Tour to Documentary Film', *BirdLife International*, 17 December 2010, accessed 6 February 2018, http://www.birdlife.org/pacific/news/ground-breaking-book-tour-documentary-film.

Religions and Philosophies for the Earth, edited by Laurel Kearns and Catherine Keller, and *Eco-theology* by Celia Deane-Drummond. *EcoSpirit*, published in the United States in 2007, is the culmination of the Fifth Annual Transdisciplinary Theological Colloquium at Drew University. The event sought to combine theory and practice: 'Scholars barefoot in the grass, planting trees, reciting poetry? Telling stories of their significant animal others, singing songs of the creation? Such images linger from the event at which we tried to combine practice and theory—even literally grounding theory as we planted a time-capsule, part of an ecological art project.'[40] The resulting volume includes essays on the task of grounding eco-spiritual/eco-theological discourse; the concept of nature in science, religions, and philosophy; theory and theology of ecology; eco-theological doctrines; the significance of space; and ecological ritual and liturgical practice. Realising that there were still 'relatively few good accessible resources to help laity and others understand and appreciate eco-theology', [41] Celia Deane-Drummond, then located at the University of Chester, wrote *Eco-theology*, which was published in the United Kingdom in 2008 and was intended to appeal to students, as well as to established scholars of theology, religious studies, and/or the environmental sciences. In her acknowledgements, Deane-Drummond states that 'in view of the increasing intensity of popular and public interest in environmental concern, it seems timely to be publishing this book now'.[42] Although I am not positing that Atwood was directly influenced by either of these publications,

[40] Laurel Kearns and Catherine Keller, 'Preface', in *Ecospirit: Religions and Philosophies for the Earth*, ed. Laurel Kearns and Catherine Keller (New York: Fordham University Press, 2007), xiv-xv.

[41] Celia Deane-Drummond, *Eco-Theology* (London: Darton, Longman and Todd, 2008), vii.

[42] Deane-Drummond, vii.

they serve as indications of the vitality—both academically and publicly—of the ecology-religion intersection just prior to the publication of *The Year of the Flood*, in which environmentalism and religion is foregrounded as a theme through the text's focus on the God's Gardeners.

Environmentalism, whether on its own or as it aligns with religion, is by far the most common topic for critical analysis of the *MaddAddam* trilogy; therefore, it serves as a superb text for an explanatory method interested in eco-theology.[43] The intersection of ecology and environmentalism with religion, which I will refer to here as *eco-theology*, is of interest to the science-and-religion field.[44] The great breadth of eco-theology can be observed from its various strands, including deep ecology,[45]

[43] Not all of Atwood's critics would use the term eco-theology. For example, ecocritic Nazry Bahrawi argues that the God's Gardeners are better described as having an eco-teleology, alongside a broadly Christian-Biology faith, rather than an eco-theology. See Bahrawi, 'Hope of a Hopeless World: Eco-Teleology in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*'.

[44] For example, see Susan Power Bratton, 'Ecology and Religion', in *The Oxford Handbook of Religion and Science*, ed. Philip Clayton (Oxford: Oxford University Press, 2008), 207–25; Celia Deane-Drummond, 'Theology, Ecology, and Values', in *The Oxford Handbook of Religion and Science*, ed. Philip Clayton (Oxford: Oxford University Press, 2008), 891–907; Holmes Rolston III, 'Environmental Ethics and Religion/Science', in *The Oxford Handbook of Religion and Science*, ed. Philip Clayton (Oxford: Oxford University Press, 2008), 908–28; Christopher Southgate, 'Some Resources for Christian Theology in an Ecological Age', in *God, Humanity and the Cosmos: A Textbook in Science and Religion*, ed. Christopher Southgate, 3rd ed. (New York: T&T Clark International, 2011), 225–54; Celia Deane-Drummond, 'Climate Change: Engaging Theology with Science in Society', in *God, Humanity and the Cosmos: A Textbook in Science and Religion*, ed. Christopher Southgate, 3rd ed. (New York: T&T Clark International, 2011), 420–40.

[45] See Michael Zimmerman, *Contesting Earth's Future: Radical Ecology and Postmodernity* (Berkeley, CA: University of California Press, 1994), 1–2; Martha Lee, *Earth First! Environmental Apocalypse* (Syracuse, NY: Syracuse University Press, 1995); Deane-Drummond, *Eco-Theology*, 35–37.

liberation theology,[46] indigenous theology,[47] liturgical theology,[48] social ecology,[49] biblical eco-theology,[50] ecofeminism,[51] and eco-eschatology.[52] I will use the term *eco-theology* to reflect the broadest sense of interaction between the religious and the environmental—including all religions and forms of spirituality, philosophical theories that feed into religious or theological discourse, and theory and praxis. This section on eco-theology will explore the non-fictional, radical environmentalist group Earth First!,[53] as they correspond to the God's Gardeners, and the beliefs and practices of religious cults and new religious movements or spiritualities (as opposed

[46] See Leonardo Boff, *Cry of the Earth, Cry of the Poor*, trans. Phillip Berryman (Maryknoll, NY: Orbis Books, 1997); Deane-Drummond, *Eco-Theology*, 46–50.

[47] See Marion Grau, 'Caribou and Carbon Colonialism: Toward a Theology of Arctic Place', in *EcoSpirit: Religions and Philosophies for the Earth*, ed. Laurel Kearns and Catherine Keller (New York: Fordham University Press, 2007), 433–53; Deane-Drummond, *Eco-Theology*, 50–54.

[48] See Milton Efthimiou, 'Orthodoxy and the Ecological Crisis', in *Ecotheology: Voices from South and North*, ed. David Hallman (Geneva: World Council of Churches, 1994), 92–95; Deane-Drummond, *Eco-Theology*, 56–68.

[49] See Zimmerman, *Contesting Earth's Future: Radical Ecology and Postmodernity*, 2; Deane-Drummond, *Eco-Theology*, 69–74; Murray Bookchin, *The Philosophy of Social Ecology: Essays on Dialectical Naturalism*, 2nd edition, revised (London: Black Rose Books, 1995); Michael Northcott, *The Environment and Christian Ethics*, eBook (Cambridge: Cambridge University Press, 1996).

[50] See Ernst Conradie et al., 'Discourse on Christian Faith and the Earth', in *Christian Faith and the Earth: Current Paths and Emerging Horizons in Ecotheology*, ed. Ernst Conradie et al. (London: Bloomsbury, 2014), 1–10; Norman Habel, 'The Earth Bible Project', SBL Forum Archive, July 2004, accessed 7 February 2018, https://www.sbl-site.org/publications/article.aspx?articleId=291; *The Green Bible* (London: HarperCollins Publishers, 2008); David Hallman, ed., *Ecotheology: Voices from South and North* (Geneva: World Council of Churches, 1994), 11–61; Dieter Hessel, ed., *Theology for Earth Community: A Field Guide* (Maryknoll, NY: Orbis Books, 1996), 21–63; Deane-Drummond, *Eco-Theology*, 81–98.

[51] See Zimmerman, *Contesting Earth's Future: Radical Ecology and Postmodernity*, 2; Donna Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (London: Free Association Books, 1991); Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene*, eBook, Experimental Futures (Durham: Duke University Press, 2016); Goodeve, *How Like a Leaf: A Conversation with Donna J. Haraway*; Anne Primavesi, *From Apocalypse to Genesis: Ecology, Feminism and Christianity* (Turnbridge Wells, Kent: Burns & Oates, 1991); Anne Primavesi, *Gaia and Climate Change: A Theology of Gift Events* (Abingdon: Routledge, 2009); Starhawk, *The Earth Path: Grounding Your Spirit in the Rhythms of Nature* (New York: HarperCollins Publishers, 2004); Deane-Drummond, *Eco-Theology*, 146–63.

[52] See Deane-Drummond, *Eco-Theology*, 164–78.

[53] The full name of the group is *Earth First!*; therefore, the exclamation point in the group title will not be treated as a punctuation mark.

to traditional, organised religion), using the eco-spirituality of the God's Gardeners as an impetus for discussion.

Earth First!

J. Brooks Bouson convincingly argues that Atwood draws on the philosophy of deep ecology and the apocalyptic and millenarian environmentalism of radical activists like Earth First! in her depiction of the God's Gardeners and Crake.[54] For Atwood, environmentalism and faith are implicitly linked, and, as Bouson argues, Atwood's eco-apocalyptic fiction makes such links explicit. In her highly influential book, *Earth First!: Environmental Apocalypse*, Martha Lee examines the link between radical environmentalism (particularly deep ecology) and religion, as it manifests itself in Earth First!.

Deep ecology explains our environmental crisis as the outcome of anthropocentric humanism and calls for a shift from that anthropocentric humanism to ecocentrism, in which humans are affirmed as a part of nature.[55] The term *deep ecology* was first used by Arne Naess to distinguish it from the, at the time, more powerful, shallow ecology movement that fights 'against pollution and resource depletion' due to its central objective of 'the health and affluence of people in

[54] Bouson, 'A "Joke-Filled Romp" Through End Times: Radical Environmentalism, Deep Ecology, and Human Extinction in Margaret Atwood's Eco-Apocalyptic *MaddAddam* Trilogy', 342. Other critics note the connection between the *MaddAddam* trilogy and deep ecology; however, they mention only deep ecology, not Earth First! specifically. For example, see Bahrawi, 'Hope of a Hopeless World: Eco-Teleology in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*'; Hannes Bergthaller, 'Housebreaking the Human Animal: Humanism and the Problem of Sustainability in Margaret Atwood's *Oryx and Crake*', *English Studies* 91, no. 7 (2010): 728–43, https://doi.org/10.1080/0013838X.2010.518042.

[55] Zimmerman, *Contesting Earth's Future: Radical Ecology and Postmodernity*, 1–2.

developed countries'.[56] The deep ecology movement, on the other hand, espouses 'the relational, total-field image'; 'biospherical egalitarianism'; 'principles of diversity and of symbiosis'; 'anti-class posture'; fighting 'against pollution and resource depletion'; 'complexity'; and 'local autonomy and decentralization'.[57] The most recognisable tenets of deep ecology (known as the Deep Ecology Platform) were articulated by Bill Devall and George Sessions: (1) the well-being and flourishing of human and non-human life on earth have intrinsic value; (2) richness and diversity of life forms contribute to the realisation of these vales and are also values themselves; (3) humans have no right to reduce this richness and diversity except for vital needs; (4) the flourishing of human life and cultures is compatible with a substantial decrease in human population, and the flourishing of non-human life requires such a decrease; (5) present human interference with the non-human world is excessive and worsening; (6) policies must therefore change; (7) the necessary ideological change is mainly that of appreciating life quality rather than increasingly higher standards of living; and (8) those who subscribe to these tenets have an obligation to directly or indirectly try to implement the necessary changes.[58] Concerning this platform, Clare Palmer notes that '[d]eep ecology is an amorphous cluster of ideas, not all of which are held by all who class themselves deep ecologists, and some of which are held by those who definitely would not'; furthermore, '[t]hese concepts are frequently

[56] Arne Naess, 'The Shallow and the Deep, Long-Range Ecology Movement: A Summary', *Inquiry* 16, no. 1–4 (1973): 95, https://doi.org/10.1080/00201747308601682.

[57] Naess, 95–98.

[58] Bill Devall and George Sessions, *Deep Ecology: Living as If Nature Mattered* (Salt Lake City, UT: Gibbs M. Smith, Inc., 1985), 70.

prioritized differently and are sometimes in tension with one another.'[59] However, seeking to be as inclusive as possible, this deep ecology platform is ideally general enough to attract people from different religious and philosophical traditions to the deep ecology movement.[60] Earth First! represents one strand of deep ecology.

Founded in 1980 by Dave Foreman along with four of his friends, Ron Kezar, Bart Koehler, Mike Roselle, and Howie Wolke, Earth First! has become one of the best-known radical environmentalist groups in the United States.[61] Earth First! is considered both a general and a green terrorist group.[62] The group's statement of principles follow the tenets of deep ecology: wilderness has a right to exist for its own sake; all life forms have an inherent and equal right to existence; humankind is no greater lifeform and has no legitimate claim to dominate the earth; humankind threatens the basic life processes of the earth; all human decisions should consider earth first and humankind second; the only true test of morality is whether an action or individual benefits the earth; humankind would be better off in a society that recognises humankind's biological nature and which is in dynamic harmony with the biosphere; and political compromise has no place in the defence of the earth.[63] Earth First! announced its presence on the environmental scene in 1981 when members unfurled a three-hundred-foot black plastic banner down the face of the Glen Canyon

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[59] Clare Palmer, *Environmental Ethics and Process Thinking* (Oxford: Clarendon Press, 1998), 165–66.

[60] Zimmerman, *Contesting Earth's Future: Radical Ecology and Postmodernity*, 20.

[61] Lee, *Earth First! Environmental Apocalypse*, 31.

[62] Michael Gunter, 'Earth First!', in *Green Culture: An A-to-Z Guide*, ed. Kevin Wehr, eBook (Thousand Oaks: SAGE Publications, 2011), 232–36; Laura Lambert, 'Earth First!', in *The SAGE Encyclopedia of Terrorism*, ed. Gus Martin, eBook (Thousand Oaks: SAGE Publications, 2011), 165–66.

[63] Lee, *Earth First! Environmental Apocalypse*, 39. There was initially a ninth principle stating that the earth is Goddess and the proper object of human worship; however, this was almost immediately discarded.

Dam, giving the appearance of a deep crack.[64] Although most members viewed Foreman as their millenarian or apocalyptic prophet, the group had no formal, central authority.[65] By 1987, two factions formed within Earth First!: those, such as Foreman, interested in preserving wilderness and biodiversity, and becoming increasingly apocalyptic; and those, such as Mike Roselle, interested in including issues of social justice, and becoming increasingly millenarian.[66] The infighting between these factions weakened Earth First!, and in 1988 and 1989, Earth First! became the subject of intense FBI surveillance and infiltration—these two forces threatening the existence of the movement.[67] Power within Earth First! shifted toward the millenarian social justice faction by mid-1989. In August, Foreman declared that he was leaving the movement, drawing away the apocalyptic faction with him; thus, by September 1990, the Earth First! movement, as it had originally been created, ceased to exist.[68] However, as of 2011, Earth First! groups exist in the United States, Canada, Mexico, the United Kingdom, and at least a dozen other nations.[69] Furthermore, due to its later, relatively moderate position, Earth First! has become the most recognisable group of the radical environmental movement.[70]

There are copious instances of likely homage to Earth First! expressed in the fictional God's Gardeners. According to Lee, '[i]t was decided that given Earth First!'s status as a movement, the term "member" was inappropriate; the appellation "Earth

[64] Lee, 45–46.
[65] Lee, 117.
[66] Lee, 96–97.
[67] Lee, 114.
[68] Lee, 115–40.
[69] Gunter, 'Earth First!'
[70] Lambert, 'Earth First!'

First!er" better expressed the meaning of Earth First!'s role in history'.[71] Similarly, the names within the *MaddAddam* trilogy are *God's Gardener(s)* and *MaddAddamite(s)*, rather than *members* of either the God's Gardener or MaddAddam group. The split between the apocalyptic and millenarian factions of Earth First! is reflected in the split between the MaddAddamites and the God's Gardeners; the MaddAddamite faction resembles the apocalyptic faction, and the God's Gardener faction resembles the millenarian faction. The notable difference between the Earth First! split and the God's Gardener split is that original founder of the God's Gardeners remained the leader to the pacifist God's Gardener faction, unlike Dave Foreman, who left the millenarian faction that maintained the Earth First! title in order to create a new biocentric group. Earth First!, from its conception, was notable for its media-savvy tactics. While the God's Gardener official stance was anti-technological, the Gardener founder and inner circle communicated extensively via the internet (through the Extinctathon game), and Gardener eco-sabotage was intended to gain publicity in their defiance of the Corporations. This is direct action and 'monkeywrenching', similar to the tactics of Earth First!. There are also various links between Earth First! stances and the stances of various God's Gardeners (or those connected to the God's Gardeners). Earth First! was founded on the belief that reform environmentalism was not doing enough—or worse, was a scam—this is reflected in Zeb's comments about the Bearlift: 'Bearlift was a scam, or partly a scam …. Unlike many scams it was well meaning, but it was a scam nonetheless'.[72] Other ideas shared between Earth First!

[71] Lee, *Earth First! Environmental Apocalypse*, 61.

[72] Margaret Atwood, *MaddAddam*, First Anchor Books Edition (New York: Random House, 2014), 59.

and God's Gardeners include: biocentrism and biodiversity, reduction in human population ('All the real Gardeners believed the human race was overdue for a population crash. It would happen anyway, and maybe sooner was better'[73]), interconnectedness,[74] and millenarianism (the Gardeners as God's Chosen people to survive the Waterless Flood[75]). The final link between Earth First! and the God's Gardeners is misanthropy. In the years 1986–1987, three articles by 'Miss Ann Thropy' (the pseudonym of Christopher Manes) appeared in *Earth First!*, the publication of the movement. The most controversial of these, 'Population and AIDS', argued that the only real hope for continuation of biodiversity was an enormous decline in the human population and suggested that a disease such as AIDS had the potential to bring this about. The benefits of AIDS were the disease affected only human beings, had a long incubation period allowing for maximum infection of others, and the disease spread through sexual activity.[76] This potential is realised in the *MaddAddam* trilogy by Crake, who, although not properly a God's Gardener or a MaddAddamite, has ties to both factions. Crake's JUVE virus only affects humans, is highly infectious (though fast-acting, unlike AIDS), and is initially spread through a pill promising sexual arousal, contraception, and protection from sexually transmitted diseases. In the words of Bouson: 'Crake can be understood as an adherent of deep ecology and a radical and apocalyptic environmentalist who, in the face of an imminent human-created ecological catastrophe, determines to use his genius at

[73] Atwood, 330.
[74] Atwood, *The Year of the Flood*, 51–53.
[75] Atwood, 47.
[76] Lee, *Earth First! Environmental Apocalypse*, 102–3.

bioengineering to save the biosphere by replacing destructive humans with his non-aggressive and primitive tribal hominoid species, the Crakers.'[77] Miss Ann Thropy may never have advocated the actual *spreading* of AIDS, but the fictional Crake bioengineered such a virus with assistance of Gardeners such as Pilar and Adam One.

Thus we can see that Crake, the God's Gardeners, and the MaddAddamites all reflect the radical environmentalist movement Earth First! in such a way that Atwood is likely not only drawing on the philosophy of deep ecology, but more specifically the notorious actions of this group of eco-activists—variously considered ecofascists[78] and eco-terrorists.

God's Gardeners (a green cult) through the lens of religious studies

Shannon Hengen claims that Atwood's voice 'resembles what might emerge from a document produced by a group of thinkers from the disciplines of biology, economics, religious studies, and literature. The addition of thought from the discipline of religious studies represents the greatest peculiarity, and the greatest contribution, of her recent work [in *Oryx and Crake*, *Payback: Debt and the Shadow Side of Wealth*, and *The Year of the Flood*]'.[79] This comment prompts a consideration of the God's Gardeners through the lens of religious studies. The God's Gardeners, as they are portrayed to the reader throughout the trilogy, are 'an obscure and then outlawed and then disbanded green religious cult'.[80] Although multiple cells of

[77] Bouson, 'A "Joke-Filled Romp" Through End Times: Radical Environmentalism, Deep Ecology, and Human Extinction in Margaret Atwood's Eco-Apocalyptic *MaddAddam* Trilogy', 348.
[78] Deane-Drummond, *Eco-Theology*, 37; Lee, *Earth First! Environmental Apocalypse*, 106.
[79] Hengen, 'Moral/Environmental Debt in *Payback* and *Oryx and Crake*', 79.
[80] Atwood, *MaddAddam*, 135.

Gardeners exist, the main cell is located at Edencliff Rooftop Garden, where their leader, Adam One, resides. God's Gardeners use the Human Words of God (what seems to be the Christian Bible) as religious inspiration and follow a calendar year filled with Feast and Saint Days that began in Year 1 with the founding of the cult. Hymns and sermons, both of which are recorded in the text of *The Year of the Flood*, combine Christian imagery with Creation-centred, scientific imagery; saints and feasts are composed of a similar combination. Atwood acknowledges the influence of Christianity;[81] however, to consider the God's Gardeners merely a satirical, comic, fanatical, naïve, or weird vision of Christianity,[82] is to miss available discourses on spirituality, cults/new religious movements, and fictional religions from within religious studies.

Religious scholars Paul Heelas and Linda Woodhead claim 'that traditional forms of religion, particularly Christianity, are giving way to holistic spirituality, sometimes still called "New Age"'.[83] Heelas and Woodhead are interested in 'subjective-life spirituality' as opposed to 'life-as religion', according to the following claim of spiritual revolution: '[l]ife-as forms of the sacred, which emphasize a transcendent source of significance and authority to which individuals must conform at the expense of the cultivation of their unique subjective-lives, are most likely to be in decline', and '[s]ubjective-life forms of the sacred, which emphasize inner sources

[81] Atwood, 'Acknowledgements', 2010, 433.

[82] For example, see Canavan, 'Hope, But Not for Us: Ecological Science Fiction and the End of the World in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*'; Bergthaller, 'Housebreaking the Human Animal: Humanism and the Problem of Sustainability in Margaret Atwood's *Oryx and Crake*'.

[83] Heelas and Woodhead, *The Spiritual Revolution: Why Religion Is Giving Way to Spirituality*, x.

of significance and authority and the cultivation or sacralisation of unique subjective-lives, are most likely to be growing'.[84] Explaining this revolution, Heelas and Woodhouse employ what they call 'the subjectivization thesis', which 'invokes the "massive subjective turn" of modern culture to explain why there are ever more people who—if they are concerned about, or become concerned with, the sacred—are much more likely to be, or become involved with, those forms which help them cultivate the unique "irreplaceabilities" of their subjective-lives than those which emphasize the importance of conforming to higher authority'.[85] Following research as part of the Kendal Project, Heelas and Woodhead have stated that the current situation would be better described as a 'major shift' than a spiritual 'revolution'.[86] While Heelas and Woodhead stop short of attempting to predict exactly when (or even if) a full spiritual revolution will occur, the trends they describe existed at the time of their research in 2005, and such trends are significant when considering the religious landscape Atwood may have been drawing upon when writing her trilogy.

Although many of Atwood's critics focus either on the environmental ideology/philosophy behind the God's Gardeners or see the fictional movement as a parody of Christianity, there are, in fact, fields of religious study within which to contextualise Atwood's green religious cult as new age spirituality or a new religious movement arising from within the cultic milieu. Colin Campbell describes the cultic milieu, out of which various particular cults arise, as 'the cultural underground of

[84] Heelas and Woodhead, 5–6.
[85] Heelas and Woodhead, 10.
[86] Heelas and Woodhead, 149.

society'.[87] According to Campbell, the cultic milieu represents 'deviant forms of the prevailing religious and scientific orthodoxies in combination with both instrumental and expressive orientations' and whose important elements include 'the religious tradition of mysticism and the personal service practices of healing and divination'.[88] The emphasis on mysticism, divination, and personal healing align the cultic milieu with the subjective-life spirituality studied by Heelas and Woodhead during the Kendal Project. As Heelas and Woodhead point out, holistic spiritualities are also still sometimes considered *new age spirituality*. Such spiritualities have been described as *third-ways*, bridging the gap between membership within organised religion and complete non-religiosity.[89] According to Heelas, who has studied the new age movement, the main elements of such spirituality are 'your lives do not work', 'you are Gods and Goddesses in exile', and 'let go/drop it'.[90] Considering the God's Gardeners alongside these related religious studies discourses, one finds persuasive parallels. For example, the God's Gardeners are the cultural underground of society with their status as 'obscure' and 'outlawed'.[91] Campbell classifies various cults using scientific-religious and instrumental-expressive axes, taking for granted the shared prior criterion of societal deviancy.[92] The God's Gardeners combine religion and science in their beliefs. However, they are deviant from science in their withdrawal from technologically-driven Compound life in which science is used to dominate,

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[87] Campbell, 'The Cult, the Cultic Milieu and Secularization', 14.

[88] Campbell, 23.

[89] Taves and Kinsella, 'Hiding in Plain Sight: The Organizational Forms of "Unorganized Religion"', 87.

[90] Heelas, *The New Age Movement: The Celebration of the Self and the Sacralization of Modernity*, 18–20.

[91] Atwood, *MaddAddam*, 135.

[92] Campbell, 'The Cult, the Cultic Milieu and Secularization', 16.

exploit, and control the natural world. One noticeable deviancy in the realm of religion (at least from some forms of Christianity) is their this-world, present-time approach to their religious beliefs and teachings. For example, although Adam One refers to scriptural texts in his sermons, direct discernment of God's will is achieved personally and directly by individuals through drug-induced religious experiences, rather than through scriptural study. The Gardener religion also resides further along the instrumental end of the instrumental-expressive axis. While it could be argued that the God's Gardeners are an organised religion, their official doctrine eschews hierarchical structure. Leaders are referred to as Adam or Eve followed by a number (for example, Adam One, Adam Seven, Eve Six, *et cetera*); however, the number refers to one's expertise, rather than to one's level of importance.[93] Adam One, therefore, is viewed primarily as a prophet rather than the single leader of all God's Gardeners. Considering Heelas's three aspects of new age spirituality, the Gardener stance might be the following: your life, as dictated by the consumeristic society of the Exfernal world, does not work—not only has your life been emptied of meaning, but that lifestyle is destroying the earth; you are, therefore, living in exile from your natural home within the natural world—you are, after all, *natural* yourself—return home, then, to the natural world, first in Edencliff Rooftop Garden, and then out into the revitalised world following the Waterless Flood; let go of that cold, rational, technology-driven world—reconnect with nature and reconnect with your soul (through spiritual, drug-induced, inner journeys). Some deep ecology groups, such as Earth First!, may not appreciate the fictional God's Gardener approach, accusing

[93] Atwood, *The Year of the Flood*, 45.

them of being anthropocentric;[94] however, Atwood's trilogy suggests that perhaps such a religious stance has something to offer the environmental movement, possibly making it more appealing to more people in our subjective-life culture, thereby allowing the movement to become more effective.

The final religious studies concept of relevancy, here, is that of fictional, invented, or hyper-real religions, which we explored in Chapter 4. Atwood has blurred the boundaries between fiction and non-fiction in her treatment of the God's Gardeners and their religious way of life, as noted in Chapter 6. Atwood created a website for *The Year of the Flood* (www.yearoftheflood.com), which remains active; she collaborated with composer Orville Stoeber to put Gardener hymns to music, a CD of which is available for purchase; and she advertised the book on a green, international book tour. The book tour took Atwood to various cities in which she worked with local musicians and actors to bring the book's characters to life. While on tour, Atwood adopted many of the Gardener ways of life, and promoted the conservation organisation BirdLife International. These extra-textual materials suggest that perhaps *The Year of the Flood* could be considered a modern-day Green Bible—a claim also suggested by ecocritic Greg Garrard.[95] Within religious studies, this can align with theories at the intersection of religion and literature. Most specifically those expressed within Emily McAvan's *The Postmodern Sacred: Popular Culture Spirituality in the Science Fiction, Fantasy and Urban Fantasy Genres* (2010) and Carole Cusack and Pavol Kosnáč's *Fiction, Invention and Hyper-reality: From*

[94] See Lee, *Earth First! Environmental Apocalypse*, 11.

[95] Canavan, 'Hope, But Not for Us: Ecological Science Fiction and the End of the World in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*', 157–58. Note 24.

Popular Culture to Religion (2017), which were both explored more fully in Chapter 4. McAvan's thesis is that people consume the spiritual content of fictional texts for spiritual nourishment.[96] Cusack and Kosnáč's edited volume presents studies of individuals or groups of people living out religions connected to fictional works or of intentionally invented status.[97] Another religion scholar, Adam Possomai, uses Jean Baudrillard's concept of hyper-reality to describe the act of blurring the distinction between religion/spirituality and popular culture, clarifying, however, that '[i]t's not necessarily believing the narrative that's been said, but it's about people getting some inspiration'.[98] Atwood's creation of the fictional God's Gardeners, her inclusion of hymns and sermons in the text, her statement that 'unless environmentalism becomes a religion it's not going to work',[99] and her extra-textual actions surrounding the release of *The Year of the Flood* combine to suggest that Atwood perhaps intends the God Gardener religion to become a reality. This is borne out in both the reaction of fans stating they want to become God's Gardeners[100] and Atwood's labelling of people as God's Gardeners, as she did with two members of the international Christian environmental organisation, A Rocha.[101] Atwood may not want to become

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[96] McAvan, *The Postmodern Sacred: Popular Culture Spirituality in the Science Fiction*, Fantasy and Urban Fantasy Genres.

[97] Carole M. Cusack and Pavol Kosnáč, eds., *Fiction, Invention and Hyper-Reality: From Popular Culture to Religion*, Routledge Inform Series on Minority Religions and Spiritual Movements (New York: Routledge, 2016).

[98] Adam Possamai and Sammy Bishop, 'Hyper-Real Religion, Digital Capitalism and the Pygmalion Effect', *The Religious Studies Project (Podcast Transcript)*, 6 November 2017, http://www.religiousstudiesproject.com/podcast/hyper-real-religion-digital-capitalism-and-the-pygmalion-effect/.

[99] Wagner, 'The Conversation: Margaret Atwood'.

[100] Mann, *In the Wake of the Flood*.

[101] Margaret Atwood, 'Margaret Atwood Meets, and Admires, Some Real-Life "God's Gardeners"', *Church for Vancouver: Working Together*, With the Community, 20 January 2014, accessed 15 February 2018, http://churchforvancouver.ca/margaret-atwood-meets-and-writes-about-some-real-life-gods-gardeners/.

a God's Gardener, herself, but her contribution of *The Year of the Flood* to popular culture may yet inspire a nonfictional God's Gardener movement.

Conclusion

In this section we identified a science-and-religion theme (eco-theology) that was also found within the *MaddAddam* trilogy. Discussion of the relationship between ecology/environmentalism and religion was done through explorations of Earth First!, due to correlation between the deep ecology movement and the fictional God's Gardeners, and consideration of the green religious cult through the lens of subfields within religious studies: new age spirituality; the cultic milieu; and invented, fictional, and hyper-real religions. Discussion of the relationship between ecology/environmentalism and religion is, therefore, given explanatory support by the *MaddAddam* trilogy. The literary text becomes the medium through which to explore and explain research and theorisation at the intersection of ecology/environmentalism and religion. The final theme with which I will model the explanatory approach using the *MaddAddam* trilogy is religious or spiritual experience.

Religious and Spiritual Experiences

The distinction between the spiritual and the religious is not always clear; however, a distinction will be made herein for the sake of clarity. In this chapter, *spiritual experiences* will be those experiences which point beyond normal, everyday life, and which have spiritual or religious significance for the people to whom they

occur.[102] Spiritual experiences 'do not reflect any specific religious beliefs', but 'give an indication of an influence which is inexplicable in any down-to-earth way'.[103] *Religious experience* is a subcategory of spiritual experience, in which the experient derives religious significance from the experience. For example, the experience may confirm or conform to the tenets of a particular religious tradition for the experient. All humans are capable of having spiritual experiences (if the experient considers the experience to point beyond normal, everyday life), but not all of those experiences will be considered by the experient to have religious significance. Spiritual experiences that are considered by the experient to have religious significance will, therefore, be considered both spiritual and religious. Due to this understanding of the distinction between religious and spiritual experiences, I will refer to *spiritual experiences* throughout this chapter (unless referring to or quoting from a source in which the term *religious* is explicitly used), with the understanding that religious experiences will already be included as a subsection of such experiences.

Within the science-and-religion field, study of spiritual experiences is connected to the intersection of psychology and faith, and it has implications for arguments for divine existence, concepts of the divine, and theories of divine action.[104] Work on the science-and-religion topic of spiritual experiences has led to

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[102] Marianne Rankin, *An Introduction to Religious and Spiritual Experience* (London: Continuum, 2008), 5.

[103] Rankin, 13.

[104] See Barbour, *Religion and Science: Historical and Contemporary Issues: A Revised and Expanded Edition of* Religion in an Age of Science., 151–54; Evan Thompson, 'Neurophenomenology and Contemplative Experience', in *The Oxford Handbook of Religion and Science*, ed. Philip Clayton (Oxford: Oxford University Press, 2008), 226–35; Phillip H. Wiebe, 'Religious Experience, Cognitive Science, and the Future of Religion', in *The Oxford Handbook of Religion and Science*, ed. Philip Clayton (Oxford: Oxford University Press, 2008), 503–22; Watts and Dumbreck, 'Psychology and Theology',

defences of the epistemological reality of such experiences;[105] attempts to prove that spiritual experiences are natural phenomena;[106] claims to the biological, observable, and scientific reality of spiritual (especially mystical) experiences;[107] and arguments for the existence a fifth, spiritual dimension of the universe, to which all religions partially, yet genuinely, refer.[108]

The *MaddAddam* trilogy engages spiritual experiences through the God's Gardeners' use of drugs to create such experiences. This section will, therefore, explore the connection between psychedelia and spiritual experiences, in conversation with the spiritual experiences portrayed in the *MaddAddam* trilogy.

212–22; Amber Griffioen, 'The SDA Reader: Religious Experience', *The Special Divine Action Project*, accessed 9 June 2019, https://sda.bodleian.ox.ac.uk/sda/#!/themes/article/338.

[105] For example, William James concludes his foundational *Varieties of Religious Experience* with the following: 'Let me then propose, as an hypothesis, that whatever it may be on its *farther* side, the "more" with which in religious experience we feel ourselves connected is on its *hither* side the subconscious continuation of our conscious life. Starting thus with a recognized psychological fact as our basis, we seem to preserve a contact with "science" which the ordinary theologian lacks. At the same time the theologian's contention that the religious man [*sic*] is moved by an external power is vindicated, for it is one of the peculiarities of invasions from the subconscious region to take on objective appearances, and to suggest to the Subject as external control. In the religious life the control is felt as "higher"; but since on our hypothesis it is primarily the higher faculties of our own hidden mind which are controlling, the sense of union with the power beyond us is a sense of something, not merely apparently, but literally true.' William James, *The Varieties of Religious Experience: A Study in Human Nature*, Penguin Classics (New York: Penguin Books, 1985), 512–13. Italics original.

[106] Consider the work of Sir Alister Hardy who set up the Religious Experience Unit at Manchester College, Oxford in 1969, now at the University of Wales, Lampeter. See Rankin, *An Introduction to Religious and Spiritual Experience*, 231–33; Sam Addison, 'Alister Hardy: Professor Emeritus of Zoology, Oxford', The Gifford Lectures: Over 100 Years of Lectures on Natural Theology, accessed 5 May 2018, https://www.giffordlectures.org/lecturers/alister-hardy; Alister Hardy, *The Living Stream: A Restatement of Evolution Theory and Its Relation to the Spirit of Man* (London: Collins, 1965); Alister Hardy, *The Divine Flame: An Essay Towards a Natural History of Religion* (Oxford: The Religious Experience Research Unit, 1966).

[107] For example, see Newberg, d'Aquili, and Rause, *Why God Won't Go Away: Brain Science and the Biology of Belief*.

[108] For example, see John Hick, *The Fifth Dimension: An Exploration of the Spiritual Realm* (Oxford: Oneworld Publications, 1999); John Hick, *The New Frontier of Religion and Science: Religious Experience, Neuroscience and the Transcendent* (New York: Palgrave Macmillan, 2006).

Psychedelia and spiritual experiences

The substances discussed in this section go by a variety of names: psychotomimetics (mimicking psychosis), hallucinogens (producing hallucinations), entheogens (revealing the God within), and psychedelics (mind-manifesting).[109] I will be using the term *psychedelics*, unless otherwise used by the author or study to which I am referring, instead of the other options because of the definition of spiritual experiences chosen above, in which it is the significance attached to the experience by the experient, rather than a divine source (entheogens) or particular content (hallucinogens), that defines such experiences, along with the clarification by d'Aquili and Newberg that the brain is 'working unusually but not improperly'[110] during such experiences (psychotomimetics). Furthermore, the term *psychedelic* still remains open to the possibility of spiritual interpretations of the mind-manifesting experience.

The widespread habit of ingesting or inhaling psychoactive drugs for ritual purposes has been strongly attested by archaeological, literary, and ethnographic research.[111] Psychedelics became an object of scientific investigation during the nineteenth century as Europeans and Americans observed their use in other

[109] Herbert D. Kleber, 'Commentary on: Psilocybin Can Occasion Mystical-Type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance by Griffiths et Al.', *Psychopharmacology* 187 (2006): 291, https://doi.org/10.1007/s00213-006-0461-9.

[110] Newberg, d'Aquili, and Rause, *Why God Won't Go Away: Brain Science and the Biology of Belief*, 9.

[111] For a concise overview, see Paolo Nencini and Kathleen Grant, 'Psychobiology of Drug-Induced Religious Experience: From the Brain "Locus of Religion" to Cognitive Unbinding', *Substance Use & Misuse* 45, no. 13 (2010): 2132–40, https://doi.org/10.3109/10826081003713803. Also see Hick, *The Fifth Dimension: An Exploration of the Spiritual Realm*, 99–109; Paul Devereux, *The Long Trip: A Prehistory of Psychedelia* (Brisbane: Daily Grail Publishing, 2008). *The Long Trip* originally published by Penguin Arkana in 1997.

cultures.[112] In 1938, Albert Hofmann synthesised for a Swiss pharmaceutical company the twenty-fifth substance in a series of compounds intended to stop bleeding after childbirth: lysergic acid diethylamide, abbreviated LSD-25. After animal trials, LSD-25 was deemed ineffective and shelved. However, in 1943, Hofmann revisited LSD-25, accidentally self-inducing the first LSD trip in human history.[113] LSD was first used in the experimental psychiatry tradition of psychopharmacological modelling of mental disorders; however, its discovery transformed the field of biological psychiatry, moving the field from the study of mental illness to the targeting of such illness by biomedical intervention. During the 1950s, more than 750 scholarly articles were published on LSD, alone.[114]

The cultural and political standing of psychedelic drugs was complicated by one very outspoken and visible Timothy Leary. Psychedelia proponent Daniel Pinchbeck introduces Leary thus:

> I have always considered Leary a central villain in the psychedelic saga. He was certainly naïve, charismatic, sloppy, self-promotional, and out of control. Other researchers and psychologists—Stanislav Grof, Myron Stolaroff, and Oscar Janiger among others—many of whom had worked with psychedelics for years before Leary jumped into the fray, had intentionally maintained a low profile. They recognized the potentially revolutionary and paradigm-shifting nature of their work, and realized that they had to go slowly or face expulsion from the mainstream. Leary, a latecomer to psychedelic research, made that cautious strategy impossible.[115]

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[112] Nicolas Langlitz, *Neuropsychedelia: The Revival of Hallucinogen Research since the Decade of the Brain*, Online ed. (Berkeley, CA: University of California Press, 2013), 27.

[113] Langlitz, 24–25.

[114] Langlitz, 27.

[115] Daniel Pinchbeck, *Breaking Open the Head: A Visionary Journey from Cynicism to Shamanism* (London: Flamingo, 2004), 183. Originally published by Broadway Books in 2002.

Leary is perhaps most well-known for conducting the Good Friday experiment with his doctoral student Walter Pahnke and for his notorious phrase, 'turn on, tune in, and drop out'.[116] Leaving the world of academic science behind, Leary fashioned himself as a 'repressed but rebellious countercultural hero',[117] who claimed that drugs were the religion of the twenty-first century and that hallucinogens were the psychopharmacological cure for all social ills. Leary and the psychedelic counterculture challenged the cosmological order of the day by invoking direct, drug-mediated experience of the divine. This was both a religious and a political move.[118] The Fourth Great Awakening in the United States was further-reaching than previous religious awakenings, affecting mainline churches and giving rise to contemporary evangelical movements. It also led to the emergence of alternative forms of spirituality, combining Eastern religious thought, natural religion, and mystical illuminations induced by psychedelics.[119] The attempt to introduce psychedelic drugs as mediators of the divine into the modern world, dominated by Puritan and Calvinistic sensibilities, threw America into a crisis in the 1960s. The CIA became interested in the applications of psychedelics, even whilst the government tried to limit recreational usage. Their research programme, MK-ULTRA, was closed down in the late 1960s because the effects during interrogations turned out to be unpredictable; however, the long-term effects on test subjects are still newsworthy

[116] Langlitz, *Neuropsychedelia: The Revival of Hallucinogen Research since the Decade of the Brain*, 31, 33.

[117] Langlitz, 32.

[118] Langlitz, 31–34.

[119] Langlitz, 34–35.

50 years later.[120] The spreading consumption of hallucinogens among white middle-class youth and the growing numbers of drug-related accidents, scandalised by the media, resulted in the gradual prohibition of psychedelic drugs between 1966 and 1970. Scientific research into psychedelics and any hopes of a utopian society awakened by the alternative drug culture were supressed by United States legislators.[121] Despite limits enforced, research into psychedelics never totally ceased; rather, it flourished underground, surviving through publications by non-academic researchers, such as Alexander Shulgin,[122] use of the internet for websites, such as Erowid.org,[123] and gatherings, such as Burning Man.[124]

It was the Decade of the Brain (1990s) that brought about the revitalisation of formal research into psychedelics.[125] In November 1990, after a two-year-long

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[120] For example, see Ashifa Kassam, 'The Toxic Legacy of Canada's CIA Brainwashing Experiments: "They Strip You of Your Soul"', *The Guardian*, 3 May 2018, UK edition, sec. World: Americas, https://www.theguardian.com/world/2018/may/03/montreal-brainwashing-allan-memorial-institute. Also see Martin A. Lee and Bruce Shlain, *Acid Dreams: The Complete Social History of LSD: The CIA, the Sixties and Beyond*, Revised ed. (London: Pan, 2001).

[121] Langlitz, *Neuropsychedelia: The Revival of Hallucinogen Research since the Decade of the Brain*, 37. There is, however, another tangential cause to the demise of psychedelic research. By the late 1950s, problematisation occurred in scientific research concerning the medical profession and pharmaceutical marketing. Due to governmental restructuring, by the 1960s, doctors and researchers were forced to make decisions alongside lawyers, judges, legislators, ethics committees, and the FDA. This made securing funding and accessing appropriate drugs too cumbersome to make research into psychedelics worthwhile, forcing the cessation of academic studies with the drugs. See Langlitz, 29.

[122] See Langlitz, *Neuropsychedelia: The Revival of Hallucinogen Research since the Decade of the Brain*, 38; Pinchbeck, *Breaking Open the Head: A Visionary Journey from Cynicism to Shamanism*, 206–8; Alexander Shulgin and Ann Shulgin, *PIHKAL: A Chemical Love Story* (Berkeley, CA: Transform Press, 1995); Alexander Shulgin and Ann Shulgin, *TIHKAL: The Continuation* (Berkeley, CA: Transform Press, 1997). *PIHKAL* was originally published in 1991 and stands for *Phenethylamines I Have Known And Loved*. *TIHKAL* stands for *Tryptamines I Have Known And Loved*.

[123] 'EROWID: Documenting the Complex Relationship Between Humans & Psychoactives', Erowid.org, 1995–2017, accessed 7 May 2018, https://www.erowid.org.

[124] Burning Man Project, 'Burning Man', burningman.org, 1989–2018, accessed 7 May 2018, https://burningman.org. For a personal account of Burning Man, see Pinchbeck, *Breaking Open the Head: A Visionary Journey from Cynicism to Shamanism*, 79–107.

[125] Notable efforts in mainstreaming psychedelics prior to the 1990s include the work of Rick Doblin and the Multidisciplinary Association for Psychedelic Studies (MAPS). See Langlitz, *Neuropsychedelia: The Revival of Hallucinogen Research since the Decade of the Brain*, 40–41.

application process, Rick Strassman, a psychiatrist at the University of New Mexico, was permitted to perform the first hallucinogen study (using DMT [N,N-dimethyltryptamine]) in more than two decades.[126] In 1993, Strassman and others founded the Heffter Research Institute, concentrating on basic research, rather than medical applications, of psilocybin. Heffter used the neuroscience hype of the 1990s to re-legitimise psychedelic research.[127] The revival of psychedelic research occurred worldwide, and the Heffter Research Institute developed an alliance with Franz Vollenweider, who was building up a laboratory at the Psychiatric University Hospital in Zurich, where there was a significantly more permissive drug policy and regulatory system.[128] As of 2019, the Heffter Institute continues to support the dissemination of psilocybin research.[129]

Due to the two different phases of psychedelic drug research, one can find two types of approaches to psychedelia: one that expresses messianic hope that drug-induced consciousness expansion can bring in a new age, and the other that mainstreams psychedelic research as normal science, seeking to produce factual knowledge. Falling under the first approach are voices, such as Paul Devereux's, that are convinced that humanity is lost without the insight of psychedelics: '[I]f Hofmann's vision of a new Eleusis cannot be realised then I fear humanity will rule itself out in various ways—environmentally, morally, spiritually and, actually,

[126] Langlitz, 43.
[127] Langlitz, 43.
[128] Langlitz, 50–52.
[129] For example, see R. R. Griffiths et al., 'Survey of Subjective "God Encounter Experiences": Comparisons Among Naturally Occurring Experiences and Those Occasioned by the Classic Psychedelics Psilocybin, LSD, Ayahuasca, or DMT', *PLoS ONE* 14, no. 4 (2019): e0214377, https://doi.org/10.1371/journal.pone.0214377.

scientifically. We will leave the stage. If this proves to be the case, then the Earth, in the ages that belong to it alone, will surely birth a new species more capable of continuing the great adventure of consciousness.'[130] Such studies—ethnographic, autobiographical, and anecdotal—are reminiscent of the 1950s and 1960s countercultural enthusiasm for psychedelia. Research produced after the revitalisation of psychedelic enquiry is often characterised by a more sterile, detached tone and is conservative in its claims of the drugs' effects. Consider, for example, a series of studies conducted by Roland Griffiths, now on the Board of Directors of the Heffter Research Institute, and colleagues. The initial study was conducted in 2006 and was interested in the acute and persisting effects of psilocybin. The study concluded that when administered under supportive conditions, psilocybin caused mystical-type experiences.[131] Conducting a follow-up study, the team of researchers were able to report, 'When administered under supportive conditions, psilocybin occasioned experiences similar to spontaneously occurring mystical experiences that, over a year later, were considered by volunteers to be among the most personally meaningful and spiritually significant experiences of their lives and to have produced positive changes in attitudes, mood, altruism,

[130] Devereux, *The Long Trip: A Prehistory of Psychedelia*, 6.

[131] R. R. Griffiths et al., 'Psilocybin Can Occasion Mystical-Type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance', *Psychopharmacology* 187 (2006): 268–83, https://doi.org/10.1007/s00213-006-0457-5. For commentaries on this study, see David E. Nichols, 'Commentary on: Psilocybin Can Occasion Mystical-Type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance by Griffiths et Al.', *Psychopharmacology* 187 (2006): 284–86, https://doi.org/10.1007/s00213-006-0458-4; Kleber, 'Commentary on: Psilocybin Can Occasion Mystical-Type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance by Griffiths et Al.'

behaviour and life satisfaction.'[132] The suggestion is that these experiences are genuine, in that they are personally meaningful and spiritually significant for experients, even after significant time. The studies attempt to build upon the Good Friday Experiment of Leary and Pahnke,[133] and further research is being built upon and expanded from them, now studying, for example, the effect of psilocybin alongside music[134] and meditation.[135] The research is exciting, but, it does not seem to be causing the paradigm shift desired by the first wave of psychedelics proponents. First wave proponents, especially those with interest in spiritual experiences derived from psychedelics, would find support from thinkers such as Aldous Huxley, who under the influence of mescaline felt able to perceive inner and outer reality directly ('It is a transcendence belonging to another order than the human, and yet it may be present to us as a felt immanence, an experienced participation'[136]) and considers drugs a way of circumventing the 'reducing valve' of our brains in order to access more of 'Mind at Large',[137] and John Hick, who claims that 'altered states of consciousness [as caused by drugs] *can* be a contact with the Transcendent'.[138]

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[132] R. R. Griffiths et al., 'Mystical-Type Experiences Occasioned by Psilocybin Mediate the Attribution of Personal Meaning and Spiritual Significance 14 Months Later', *Journal of Psychopharmacology* 22, no. 6 (2008): 631, https://doi.org/10.1177/0269881108094300.

[133] Griffiths et al., 'Psilocybin Can Occasion Mystical-Type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance'.

[134] Frederick S. Barrett et al., 'Qualitative and Quantitative Features of Music Reported to Support Peak Mystical Experiences during Psychedelic Therapy Sessions', *Frontiers in Psychology* 8, no. 1238 (2017): 1–12, https://doi.org/10.3389/fpsyg.2017.01238.

[135] R. R. Griffiths et al., 'Psilocybin-Occasioned Mystical-Type Experience in Combination with Meditation and Other Spiritual Practices Produces Enduring Positive Changes in Psychological Functioning and in Trait Measures of Prosocial Attitudes and Behaviors', *Journal of Psychopharmacology* 32, no. 1 (2018): 49–69, https://doi.org/10.1177/0269881117731279.

[136] Aldous Huxley, *The Doors of Perception and Heaven and Hell* (London: Vintage Books, 2004), 49. *The Doors of Perception* originally published by Chatto & Windus in 1954.

[137] Huxley, 10–12.

[138] Hick, *The Fifth Dimension: An Exploration of the Spiritual Realm*, 108. Italics original.

Second wave proponents and/or researchers interested in spiritual experiences and psychedelics are more likely to be what anthropologist of science Nicolas Langlitz calls a *neuroperennialist*, referring to Felix Halser's description of a shift from *philosophia perennis*[139] to *neurobiologia perennis*: the belief that the cross-cultural shared resemblance of spiritual experiences is due to all religions sharing the same core of absolute truth is reinterpreted by neurobiology as being simply due to human brains all working alike.[140]

Now that we have considered the intersection of psychedelics and spiritual experiences, we can proceed to addressing how these are presented to readers in the *MaddAddam* trilogy. One will find that Atwood's trilogy portrays, at the level of plot and characterisation, many of the theories, experiences, interpretations, and opinions presented and discussed above.

The spiritual experiences of a God's Gardener

Of all the possible connections between psychedelic-occasioned spiritual experiences and the *MaddAddam* trilogy, three are worth mentioning: interspecies communication, environmental awareness and activism, and the interpretation of such experiences as spiritual within society dominated by physicalism, materialism, and naturalism. The final connection will be discussed at length, below, so I will first briefly comment on the two former connections.

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[139] For example, see Aldous Huxley, *The Perennial Philosophy* (London: Chatto & Windus, 1946).

[140] Langlitz, *Neuropsychedelia: The Revival of Hallucinogen Research since the Decade of the Brain*, 228.

There is a trend of interspecies communication in the *MaddAddam* trilogy. According to one of Jimmy's myths, the animals (Children of Oryx) cannot talk because the Crakers (Children of Crake) ate up all the words.[141] However, this does not mean that animals cannot communicate at all. In *The Year of the Flood*, Pilar inducts Toby into the practice of communicating with bees,[142] a practice Toby continues in the post-apocalyptic world of *MaddAddam*.[143] Interspecies communication is developed much further in *MaddAddam* when Toby learns that the Crakers can communicate with pigoons, genetically modified pigs (official name: *sus multiorganifer*) that have become lethal enemies of the surviving humans, post-apocalypse. Such communication is foreshadowed during Toby's drug-induced spiritual experience, which will be discussed in more detail below; however, it becomes explicit when Blackbeard, a Craker child, informs Toby that such communication is possible.[144] The pigoons are not simply animals (Children of Oryx), for they have been modified such that they have human neo-cortex tissue in their brains.[145] Therefore, it could be contested that any communication between humans, Crakers, and pigoons is not truly interspecies. However, the form of communication occurring between Crakers and pigoons (as well as the type of communication that occurs between Toby and a pigoon sow during Toby's drug-induced experience) is of a parapsychological nature. When Toby is informed that communication is occurring between the pigoons and Crakers, the event is narrated thus: 'The two piglet-bearers

[141] Atwood, *Oryx and Crake*, 96.
[142] Atwood, *The Year of the Flood*, 99–101.
[143] Atwood, *MaddAddam*, 210–11.
[144] Atwood, 268–70.
[145] Atwood, *Oryx and Crake*, 56.

[pigoons] have gone forward to the line of piss. Abraham Lincoln and Sojourner Truth [Crakers] are on the other side of it. They kneel so they're at the level of the pigoons: head facing head. The Crakers stop singing. There's silence. Then the Crakers start singing again.'[146] The singing of the Crakers is never given words; more likely this singing is akin to how someone would describe birds as *singing*. Indeed, from the human perspective, their singing has been called 'the Morse code of Crakerdom'.[147] Both Daniel Pinchbeck and Paul Devereux, writers presenting psychedelic research based on the countercultural hope of the 1950s and 1960s, mention interspecies communication. Reflecting on the attribution of spirit and sentience to plants by tribal groups, Pinchbeck writes: 'Perhaps iboga [a psychoactive shrub] opened a symbiotic link between plant and human, a doorway for interspecies communication. But if that were so, who or what was communicating from the other side? I was left with an impression of contact with some other intelligence or entity existing in a realm outside our own.'[148] Pinchbeck believes that the interspecies communication is actually interdimensional communication, facilitated by psychoactive natural agents. Paul Devereux, on the other hand, understands interspecies communication to be between humans and the plants or mushrooms, themselves: 'It is a remarkable fact that plant hallucinogens are hallucinogenic precisely because they contain the same, or effectively the same, chemicals as are found in the human brain, and so act on us as if we are indeed engaged in an interspecies communication'.[149] For

[146] Atwood, *MaddAddam*, 269.
[147] Atwood, 348.
[148] Pinchbeck, *Breaking Open the Head: A Visionary Journey from Cynicism to Shamanism*, 31.
[149] Devereux, *The Long Trip: A Prehistory of Psychedelia*, 205.

Devereux, the communication is still a this-worldly communication, with psychoactive natural substances calling humans to a greater experience of consciousness. Toby's drug-induced religious experience involves vague communication with a pigoon sow, which will be explored further below.

The environmental and ecological awareness of the *MaddAddam* trilogy and its author has already been attested to in this thesis, as well as in multiple other articles and book chapters. I will not spend time exploring its textual basis, here. However, I will note that to read Pinchbeck's *Breaking Open the Head* is not only to follow his spiritual awakening, but also to follow his awakening to environmentalism. Pinchbeck's turn to shamanism is also a turn to the earth: 'Shamanism is a phenomenon that comes up through the earth when human beings are connected to their home. Over time, this natural connection to the land manifests in supernatural ways.'[150] Even if the reader is not convinced of the shamanic metaphysics that Pinchbeck derives from his psychedelic trips, the reader is still left with the message that psychedelia involves connection to the environment—the mushrooms, the plants, and the communities that use them in sacred rites. The book suggests that if one values the psychedelic experience, one must defend the natural substances that are at risk from humanity's destructive exploitation of the earth.

We now begin a more in-depth exploration of the spiritual experiences of the God's Gardeners. The Gardener of interest for our purposes is Toby. In *The Year of the Flood*, Toby is saved as a young woman from a sexually abusive employer by the

[150] Pinchbeck, *Breaking Open the Head: A Visionary Journey from Cynicism to Shamanism*, 222.

charismatic God's Gardener leader, Adam One. Despite her doubts concerning the cult's beliefs, Toby eventually accepts a position among the Gardener leadership, stewarding the group's knowledge of mycology and other natural substances. Isolated during the world-wide outbreak of the deadly virus, Toby survives the Waterless Flood and continues to practice the Gardener way-of-life in the post-apocalyptic world. In *MaddAddam*, Toby syncretises Craker mythology with God's Gardener belief and practice.

The God's Gardeners use the psilocybin of mushrooms for producing visions during spiritual retreats or isolation, for treating certain medical conditions, or for easing people through 'Fallow states, when the Soul was refertilizing itself'.[151] According to Adam One, it is apprehension of the 'wholeness of Being' which is desired through the use of such natural substances: 'May we greet with joy the few moments when, through Grace, and by the aid of our Retreats and Vigils and the assistance of God's Botanicals, we are granted an apprehension of it.'[152] Only two of Toby's drug-induced experiences are recorded for the reader in the trilogy, although she presumably had multiple experiences during her time with the Gardeners. Indeed, Toby admits in a pre-apocalypse scene to having visions during her various Vigils, but none from which she could discern any meaning.[153] The first of her recorded drug-induced experiences is given meaning, not by Toby, but by Adam One—who claims that the vision is a successful outcome and implies that Toby is to

[151] Atwood, *The Year of the Flood*, 100.
[152] Atwood, 235.
[153] Atwood, 168.

become a leader (an 'Eve')[154]—and Pilar, Toby's mentor—who claims that it is 'a good sign' and that Toby will 'be helped with strength' when she needs it.[155] Meanwhile, Toby's interpretation of the vision is expressed in her own words to the lion-like creature: 'You are the effect of a carefully calibrated blend of plant toxins.'[156] However, Toby's ability or willingness to attribute significance to her drug-induced experiences grows post-apocalypse.

In seeking an answer to a difficult situation in the post-apocalyptic world, Toby decides that she is going to perform a 'short-form Enhanced Meditation'[157] in order to consult Pilar, who died prior to the Waterless Flood: 'To the soaked dried [*Psilocybe*] mushrooms and the mixed ground-up seeds she'd added a pinch of *muscaria*. Just a pinch: she doesn't want all-out brain fractals, just a low-level shakeup—a crinkling of the window glass that separates the visible world from whatever lies behind it.'[158] After imploring Pilar, from beside the bush planted above the woman's dead body, for guidance, a pigoon sow and her farrow appear. As explained above, the increased intelligence and size of pigoons have made them lethal enemies of the surviving humans. Toby stops another human from shooting the sow; despite the danger her heart is becalmed. Facing the sow, Toby's experience is narrated thus: 'Life, life, life, life, life. Full to bursting, this minute. Second. Millisecond. Millennium. Eon.' Toby's focus is interrupted by the singing of Blackbeard, who approaches the sow with outstretched arms. The sow disappears,

[154] Atwood, 172–74.
[155] Atwood, 178.
[156] Atwood, 171.
[157] Atwood, *MaddAddam*, 219.
[158] Atwood, 221.

and Blackbeard exclaims, 'She was here'. 'So, thinks Toby. Go home, take a shower, sober up. You've had your vision.' Thus ends Toby's experience.[159]

Although Toby admits to herself that she is not quite sure what she expected from the experience, by its end, she seems to think that the 'vision' is in response to her quest to speak with Pilar. Toby initially sought out Pilar's advice concerning a young, pregnant woman, who assumes she has been impregnated by her rapist and who is subsequently depressed and eager to terminate the pregnancy—despite the danger of such a procedure in the post-apocalyptic setting. It could be argued that the experience Toby receives is not an answer to this, for Toby neither sees nor hears Pilar (auditory or visual hallucinations). The sow and farrow that Toby does see are not hallucinations, nor is the singing of Blackbeard an auditory hallucination. However, Toby's senses are heightened. Her experience resembles that of Aldous Huxley's heightened senses on mescaline[160] and affirms William James's comment that it is the 'consciousness of illumination' that is of significance during spiritual experiences.[161] Blackbeard's comment 'She was here' suggests that Pilar was present in Toby's experience (this is later confirmed as Blackbeard's belief), and the emphasis on 'life' could be seen as a response to the pregnancy situation, such that life overcomes a tendency toward, or desire for, death.

This experience is interpreted by various characters in the trilogy. Toby, shortly following the event, calls it 'a mystical quasi-religious experience': 'I was communicating with my inner Pilar, which was externalized in visible form, connected

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[159] Atwood, 223.
[160] Huxley, *The Doors of Perception and Heaven and Hell*.
[161] James, *The Varieties of Religious Experience: A Study in Human Nature*, 408. Footnote 2.

with the help of a brain chemistry facilitator to the wavelengths of the Universe; a universe in which—rightly understood—there are no coincidences. And just because a sensory impression may be said to be "caused" by an ingested mix of psycho-active substances does not mean it is an illusion.'[162] We see here an example of both an immanent (inner Pilar) and transcendent (Universe) interpretation of the experience, simultaneously acknowledging the immanent mediation of a brain on drugs. Toby later decides that the sow was indeed communicating with her, although she is unable to put it into words—preferring to call it 'a current'.[163] When attempting to communicate the message to a friend, Toby explains, 'I got the feeling that she knew I'd shot her husband …. She wasn't pleased …. But more sad than mad, I'd say.'[164] According to the Crakers, the sow did indeed speak with Toby, and the sow also told the Crakers about Toby shooting the boar.[165] Despite the agnosticism toward a transcendent reality expressed within the *MaddAddam* trilogy through its narration, characterisation, and dialogue, Toby affirms the experience as spiritual ('mystical quasi-religious'), and long-term moral and spiritual effects manifest themselves in Toby's life and the lives of the beings around her as a result of the experience.[166] Toby has had a spiritual experience, and her understanding of that experience falls somewhere in between the two waves of psychedelic research and interpretation, for Toby understands that her experience is mediated by her mind on drugs, yet she

[162] Atwood, *MaddAddam*, 227–28.
[163] Atwood, 256, 261–62.
[164] Atwood, 262–63.
[165] Atwood, 263–64.
[166] See Hick, *The New Frontier of Religion and Science: Religious Experience, Neuroscience and the Transcendent*, 71.

seems to also believe that she has connected with Pilar (in a universe with no coincidences) through this experience.

There are other religious experiences in *MaddAddam* that are commented upon, including experiences induced by alcohol,[167] a Vigil to discern one's spirit animal,[168] and the divine message to begin the God's Gardeners.[169] In all instances, the experience is acknowledged as a real experience by the brain, regardless of whether and how it was induced and without claims on the existence of God, a higher reality, or a spiritual dimension. They also correspond to recent research concerning lasting spiritual significance attributed to the experience by the experient.

Conclusion

In this section we identified a science-and-religion theme (spiritual experiences) that was also found within the *MaddAddam* trilogy. The trilogy provided explanatory support to the discussion about spiritual experiences, especially those induced by psychedelics. The research into psychedelics and spiritual experiences can be conducted without reference to the trilogy; however, the trilogy can be used to provide examples, prompt further discussion, and provide a form of contextualisation to the theories and history of psychedelic research.

[167] Atwood, *MaddAddam*, 296.
[168] Atwood, 331.
[169] Atwood, 300.

Conclusion: An Explanatory Approach to the MaddAddam *Trilogy*

The purpose of this chapter has been to portray examples of an explanatory approach to science-religion-and-literature, using the particular text of the *MaddAddam* trilogy. As explained in Chapter 2, the explanatory approach is a science-and-religion-in-literature method. The three topics explored in this chapter—bioengineering and spirituality, eco-theology, and spiritual/religious experiences—are all topics already being explored within the science-and-religion field without the inclusion of literary works or literary theory. The studies conducted in this chapter used the *MaddAddam* trilogy in order to explain such problems or concerns within the science-and-religion field. Such examples are needed in order to provide sufficient contrast with the revelatory approach, which will be used in the next two chapters.

Chapter 8

Revelatory Approach to the *MaddAddam* Trilogy: Textual Themes

Introduction

Chapters 8 and 9 provide two examples of a revelatory approach within science-religion-and-literature, using the case study of the *MaddAddam* trilogy. The revelatory approach was first introduced in Chapter 2, and it will be further explicated, analysed, and assessed in Chapter 10. The revelatory approach uses particular literary texts and is a literature-in-science-and-religion method. Similar to the explanatory approach, the revelatory approach does not require studying an author's entire corpus nor does it require studying a theme across multiple texts by multiple authors.

Chapter 9 will give an example of this approach using characterisation. The current chapter will give an example using themes. Three broad themes will be discussed in this chapter: the search for immortality by the 'mad scientist' (as nuanced through ustopia[1] and satire), humanity versus nature (with an emphasis on environmentalism, climate change, and 'the everything change'[2]), and the question of what it means to be human.

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[1] See Atwood, *In Other Worlds: SF and the Human Imagination*, 66.

[2] Maddie Crum, 'A Conversation with Margaret Atwood About Climate Change, Social Media and World of Warcraft', *The Huffington Post*, 11 December 2014, UK edition, sec. Books, http://m.huffpost.com/us/entry/6141840.

Studying Themes within Narrative Fiction

When studying a literary work, the theme is generally what we say the work is about or what we consider the work to be saying about its subject. Themes can be recurring topics in a number of books, and they are often abstract ideas, which may be stated explicitly or emerge implicitly through recurring motifs (for example, repeated situations, incidents, ideas, images, or character-types).[3] According to narrative scholar Peter Lamarque, themes are not fictional, nor are they assessible in terms of their 'truth'; rather, 'what makes a theme important is its being embedded in a tradition (be it literary, philosophical, religious) which imputes value to it'.[4] Within a particular literary work, what is studied is the way a theme is developed and sustained by that work. Thus, according to Lamarque, '[t]he great (canonical) works of literature are those that creatively and imaginatively explore the central themes of a culture'.[5] The three broad themes discussed in this chapter all relate to considering what it means to be human—a central theme likely found in all cultures.

Searching for Immortality

In this section we will explore the theme of the 'mad scientist' and his or her search for immortality as it is complexified by its contextualisation within 'ustopia'

[3] For reference entries on theme and motif, see Chris Baldick, 'Theme', in *The Oxford Dictionary of Literary Terms* (Oxford: Oxford University Press, 2015); Chris Baldick, 'Motif', in *The Oxford Dictionary of Literary Terms* (Oxford: Oxford University Press, 2015).

[4] Peter Lamarque, *Fictional Points of View* (Ithaca, NY: Cornell University Press, 1996), 19.

[5] Lamarque, 20. Canon formation is a field of its own; commenting upon Lamarque's use of the word *canonical* is beyond the scope of this thesis.

and satire within the *MaddAddam* trilogy. Then we will consider the implications of this theme for science-and-religion.

The *MaddAddam* trilogy presents the theme of the mad scientist—memorably represented by the likes of Dr Frankenstein and Dr Jekyll—in the character of Crake. However, considering the trilogy as a complete whole, it is interesting to note that there is a different character with the title *Mad* in front of his name: Zeb, who is called the Mad Adam. It is Zeb who creates the MaddAddam group, which he leads in 'bioform resistance'[6] against the Corporations, using the Extinctathon platform initially created by Adam One. Zeb is neither a scientist like Crake (although he proves himself tech savvy), nor is he a religious leader like his brother, Adam One. Presumably, this is the origin of the title *MaddAddam* for the third book, which largely shares Zeb's story, as well as for the entire trilogy. Here, the relatively marginal individual gains more prominence than the world-changing scientist (although Crake remains a titular character for the first book).

Crake has many of the attributes of the literary mad scientist. He likely killed his own mother as part of an early experiment on lethal drugs.[7] As a university student, Crake fits in with the others at Watson-Crick, who are 'brilliant weirdos', '[d]emi-autistic, genetically speaking', with 'single track tunnel-vision minds' and 'a marked degree of social ineptitude'.[8] Crake screams every night in his sleep without either knowing it or admitting awareness of it to Jimmy.[9] Crake's official research is

[6] Atwood, *The Year of the Flood*, 333.
[7] See Atwood, *Oryx and Crake*, 343; Atwood, *MaddAddam*, 330.
[8] Atwood, *Oryx and Crake*, 193.
[9] Atwood, 218.

on immortality (about which I will say more below).[10] He abducts a group of scientists for his laboratory,[11] engineers human-like beings, and eventually creates and releases a virus lethal to all of humanity. His final act as mad scientist is to arrange an assisted murder-suicide, killing Oryx and then himself by the hands of Jimmy.[12]

However, the picture of Crake as mad scientist is complicated by the trilogy, for Crake's actions are understood to be a response to a perceived crisis. If one considers the pre-apocalyptic society of technocracy and anarchy upon a dying planet, then the post-apocalyptic world with vastly reduced humans and a small population of non-violent, eco-friendly Crakers would seem idyllic—the desired utopia. Crake can, therefore, be considered an extreme God's Gardener, out-bio-resisting the Mad Adam himself. Crake becomes not only the creator (god) of the Crakers, but also the saviour of the planet. Crake becomes a fictional representation of an activist like the EarthFirst!ers, willing to put Deep Ecology into practice—even to its logical conclusion of human extinction. J. Brooks Bouson phrases the dilemma in understanding Crake thus:

> Just as readers of Atwood's eco-apocalyptic trilogy may come to question whether Crake is misanthropic or altruistic—or if he is, at once, *both* misanthropic and altruistic—so we may come to question whether the human race in Atwood's pre-apocalyptic dystopian world, given its rapacious greed and murderous ways, deserves to survive. Is Crake a mad scientist and eco-fascist? Or is he a radical environmentalist using the tools of science to save the planet from the ecocidal humans bent on killing nature and, in the process, destroying themselves?[13]

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[10] Atwood, 292.

[11] Atwood, 298–99; Atwood, *The Year of the Flood*, 388.

[12] Atwood, *Oryx and Crake*, 329, 343.

[13] Bouson, 'A "Joke-Filled Romp" Through End Times: Radical Environmentalism, Deep Ecology, and Human Extinction in Margaret Atwood's Eco-Apocalyptic *MaddAddam* Trilogy', 350. Italics original.

Jimmy explicitly asks himself this question concerning Crake: 'Had he been a lunatic or an intellectually honourable man who'd thought things through to their logical conclusion? And was there any difference?'[14] Furthermore, although Crake may still be considered 'mad', *MaddAddam* reveals it is not necessarily his instrumentalist-science that tends to make him this way, rather he also seems heavily influenced by the philosophy of former Corporate scientists within the God's Gardeners. Crake's actions were likely influenced by his mother's betrayal of his father, his father's subsequent murder, and by anti-Corporation scientists like Pilar and anti-Corporation groups like the God's Gardeners. Crake is both Creator and Destroyer within the *MaddAddam* trilogy. He fits the mad scientist trope, but the theme he fosters for the trilogy is not simply one of anti-science or technological fearmongering. In order to understand Crake as a mad scientist more fully, we turn to Atwood's understanding of *ustopia* and to one of the epigraphs of the trilogy.

Atwood considers *The Handmaid's Tale* and the *MaddAddam* trilogy to be *ustopias*. In her non-fiction book, *In Other Worlds: SF and the Human Imagination*, Atwood explains, '*Ustopia* is a word I made up by combining utopia and dystopia—the imagined perfect society and its opposite—because, in my view, each contains a latent version of the other.'[15] The dystopic dimensions of the *MaddAddam* trilogy abound: the anarchy of the pleeblands, the oppression enacted by the CorpSeCorps, and Crake's killing of the majority of humanity. Citing combination of the Orwellian

[14] Atwood, *Oryx and Crake*, 343.
[15] Atwood, *In Other Worlds: SF and the Human Imagination*, 66. Italics original.

Big Brother and the economics of Brave New World, Sharon Sutherland and Sarah Swan describe *Oryx and Crake* as 'a millennial dystopia', and due to the biological terrorism of Crake, they also describe it as 'a post-9/11 dystopia'.[16] In the words of Sutherland and Swan: 'In *Oryx and Crake*, the social failings are so dire and seen as so unsolvable as to invite terrorism aimed at the greater good—eliminating the majority of the human race for the betterment of the earth.'[17] However, such readings (although limited by their focus on only the first book, rather than the entire trilogy), fail to bring into focus the utopic elements of the trilogy. For example, even in *Oryx and Crake*, there are hints of utopia in the Crakers, themselves—a species living in harmony with their environment and, according to Crake, immortal due to their lack of fear of death; there is the safety and comfort to be found within the technologically elite Compounds; in *The Year of the Flood* and *MaddAddam* the utopic elements of the God's Gardeners and of the surviving alliance of humans-Crakers-pigoons are portrayed. As a lifetime reader of dystopias, the tension between dystopia and utopia is not new for Atwood; she wrote in 'George Orwell: Some Personal Connections': 'To move us toward the improved world—the utopia we're promised—dystopia must first hold sway. It's a concept worthy of doublethink.'[18] Thus the *MaddAddam* trilogy, following Atwood's understandings of the genre so well exemplified by Orwell and Huxley, contains both dystopic and

[16] Sharon Sutherland and Sarah Swan, 'Margaret Atwood's *Oryx and Crake*: Canadian Post 9/11 Worries', in *From Solidarity to Schisms: 9/11 and After in Fiction and Film from Outside the US*, ed. Cara Cilano (Amsterdam: Rodopi, 2009), 223.

[17] Sutherland and Swan, 223.

[18] Atwood, *In Other Worlds: SF and the Human Imagination*, 149.

utopic elements.[19] Crake's access to powerful scientific technology within wealthy Corporations, his exploitations of those within the pleeblands, and his eventual elimination of humanity, are the dystopian elements that usher in the ironically utopian post-apocalyptic world. The mad scientist searching for immortality could thus be seen as combining dystopia and utopia. Our reading of Crake as a mad scientist can also be complicated by one of the epigraphs to *Oryx and Crake*, drawn from a book written by one of the literary world's greatest satirists: Jonathan Swift.

Atwood opens *Oryx and Crake* with two epigraphs. The first is taken from Jonathan Swift's *Gulliver's Travels*: 'I could perhaps like others have astonished you with strange improbable tales; but I rather chose to relate plain matter of fact in the simplest manner and style; because my principal design was to inform you, and not to amuse you.'[20] This quote may reflect utopian and dystopian references to reality, creating hope for a better future or warning of a dire future if nothing changes; however, taking such a quote from *Gulliver's Travels* introduces the element of satire. For although Lemuel Gulliver writes these words to his reader, Gulliver is a fictional character, and the locations described in his travel narrative do not exist in our nonfictional world. This epigraph is capable of causing immediate tension. Read literally, the epigraph emphasises the extensive research Atwood put into writing *Oryx and Crake*, such that the book can be read as revealing one of the possible extra-

[19] For another article exploring the combination of utopia and dystopia in the *MaddAddam* trilogy, see Mahinur Aksehir Uygur, 'Utopia and Dystopia Intertwined: The Problem of Ecology in Margaret Atwood's *Oryx and Crake*, *The Year of the Flood* and *MaddAddam*', *Uluslararasi Sosyal Arastirmalar Dergisi/The Journal of International Social Research* 7, no. 31 (2014): 41–48.

[20] Atwood, *Oryx and Crake*, xiii. For the quote within its context, see Jonathan Swift, *Gulliver's Travels*, ed. Claude Rawson and Ian Higgins, New ed., Oxford World's Classics (Oxford: Oxford University Press, 2005), 272.

textual futures of our earth. However, read with the knowledge that *Gulliver's Travels* is a satire that includes *strange improbable tales* ('unassimilable fantasy'[21]), which inevitably *amuse* the reader (although exposing 'harshly disturbing revelations about the human creature'[22]), the epigraph seems to disconnect the story of *Oryx and Crake* from extra-textual reality. Yet, at another level, *Gulliver's Travels*, as a satire, critiques many aspects of extra-textual reality: the interests of an Irish Republic, philosophical definitions of humanity as a *rational animal*, political allusions, travel narratives, imperial conquests, utopian commonwealths, the historical deterioration of all societies (English society, included), and scientific practice.[23] Thus, the satire is still to be taken seriously, just not in a literalist sense. Therefore, Atwood's combination of ustopia—with its hope for a better way, as well as a warning of future ills—with satire—with its use of humour, irony, or exaggeration to expose and criticise—enables her to speculate about the near future through the extrapolation and exaggeration of trends currently on display in our extra-textual world. Indeed, the tension between the forms of utopia and dystopia, as well as the tension between the forms of ustopia and satire in *MaddAddam*, allow for a particular expression of the themes of the mad scientist and the pursuit of immortality.

In 'Of the Madness of Mad Scientists: Jonathan Swift's Grand Academy', Atwood seeks to understand the origin of the mad scientist stock figure in the B-rated films of the late 1950s. Her proposal for the introduction of the deluded and/or

[21] Claude Rawson, 'Introduction', in *Gulliver's Travels*, by Jonathan Swift, ed. Claude Rawson and Ian Higgins, New ed., Oxford World's Classics (Oxford: Oxford University Press, 2005), xv.

[22] Rawson, xv.

[23] Rawson.

demented character of such scientists is Jonathan Swift: 'Without the Royal Society, no *Gulliver's Travels*, or not one with scientists in it; without *Gulliver's Travels*, no mad scientists in books and films.'[24] After noting the similarity between some of the experiments by projectors at the Grand Academy and current practices within the scientific community today (especially the products of the applied sciences), Atwood clarifies that it is not experimentation that is the target of Swift's satire, 'but experiments that backfire'.[25] Atwood continues:

> Moreover, it's the obsessive nature of the projectors: no matter how many dogs they explode, they keep at it, certain that the next time they inflate a dog they'll achieve the proposed result. Although they appear to be acting according to the scientific method, they've got it backward. They think that because their reasoning tells them the experiment ought to work, they're on the right path; thus they ignore observed experience.[26]

These scientists of Swift are the missing link for Atwood, who claims that '[a]lthough they don't display the full-blown madness of the truly mad fictional scientists of the mid-twentieth century, they're a definitive step along the way: the Lagadan Grand Academy was the literary mutation that led to the crazed white-coats of those B movies.'[27] The lineage is then traced forward through *Frankenstein* (1823), *Tom Brown's School Days* (1857), *Dr. Jekyll and Mr. Hyde* (1886), and *The Island of Doctor Moreau* (1896). This is the literary lineage that leads to a character like Crake.

In her discussion of mad scientists and Swift's role in their evolution, Atwood claims that the theme of immortality 'so often gets mixed into the alchemist/mad

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[24] Atwood, *In Other Worlds: SF and the Human Imagination*, 195.
[25] Atwood, 203.
[26] Atwood, 203–4.
[27] Atwood, 204.

scientist sorts of tales'.[28] According to Atwood, 'Immortality has been one of the constant desires of humanity. The means to it differ—one may receive it through natural means, as in [Swift's] Luggnagg, or from a god, or by drinking an elixir of life, or by passing through a mysterious fire, as in H. Rider Haggard's novel *She*, or by drinking the blood of a vampire; but there's always a dark side to it.'[29] In *Gulliver's Travels*, the dark side is that the immortals still age physically and mentally, such that they degenerate rather than enjoying accumulated wealth, wisdom, or value to society. In the *MaddAddam* trilogy, immortality takes three general forms. The first is a group of what I would consider *normal* pathways to immortality. This includes passing along your characteristics to your progeny (a means which disappoints Crake); commercialised health products and procedures, such as those offered by AnooYoo Spa; and the service offered by CryoJeenyus to preserve one's biological material until the technology to achieve immortality is developed. The second form of immortality is that as understood by the God's Gardeners. This includes remembering the names of those who have died, physically becoming part of the cosmos after death, and one's biological material being recycled into future life forms. The third form of immortality comes from Crake's socio-biological engineering. Crake's answer to immortality is two-fold: first, eliminate the external causes of death through the BlyssPluss pill (war [misplaced sexual energy], contagious diseases, and overpopulation), and second, create a human-like replacement species that does not know and, therefore, does not fear death (despite

[28] Atwood, 208.
[29] Atwood, 208–9.

that fact that the Crakers will eventually experience death). According to Crake, 'Immortality … is a concept. If you take "mortality" as being, not death, but the foreknowledge of it and the fear of it, then "immortality" is the absence of such fear. Babies are immortal.'[30] None of these forms of immortality are individual continuation of life without or beyond a physical death; however, they each represent an attempt to achieve that deep human longing.

Our deep human longings, such as immortality, have two sides to them. The desire of immortality, in the hands of Crake, led to the killing of humanity in order to achieve this ideal. The utopia required dystopia. Furthermore, sometimes the unappealing side (such killing an entire species) is too difficult to acknowledge or expose, this is where satire can aid the narrator or author. Satire enables the reader to contemplate hard questions, such as: are the Crakers what we envision our utopia being? and are we willing to pay the appropriate costs to get there, if it is? The two-sidedness of immortality, mad scientists, satire, and ustopias can resemble the Greek *pharmakon*, the drug which can be both/either medicine and/or poison. Writing on Plato's *pharmakon* in *Dissemination*, Jacques Derrida writes, 'There is no such thing as a harmless remedy. The *pharmakon* can never be simply beneficial.'[31] Perhaps the best representation of the *pharmakon* in the *MaddAddam* trilogy is Crake's BlyssPluss pill, which offers immense sexual pleasure, contraception, and protection from sexually transmitted diseases, but it also sterilises the user and contains a contagious

[30] Atwood, *Oryx and Crake*, 303.

[31] Jacques Derrida, 'Plato's Pharmacy', in *Dissemination*, trans. Barbara Johnson (London: Continuum, 1981), 102.

virus which causes lethal haemorrhaging. The themes of the mad scientist and the pursuit of immorality become complicated by Atwood's satire and ustopia, such that the complexity of human life (like that of the *pharmakon*) is exposed.[32]

Although mad scientists and immortality may not seem like mainstream science-and-religion topics, it is not difficult to situate them within the dialogue. Mad scientists can be representations of scientists using science and technology to play God, a critique sometimes levelled against scientists by religious individuals or groups. The search for immortality, whilst traditionally the preserve of religious orders, could also describe the work of some transhumanists seeking to, for example, upload human consciousness to computers.[33] However, the significance of considering ustopia and satire for the science-and-religion field is acknowledging the complexity of science-and-religion when considering the interaction of the two individual fields within the life and practice of human beings.[34] For example, Crake is a scientist who is influenced by the beliefs and practices of an eco-religious cult; the multiple presentations of immortality within the trilogy reveal diverse understandings of concepts by diverse people and people groups; and Crake's definition of immortality as it relates to Crakers also brings to focus the role of human language in understanding and articulating concepts. This section reveals the

[32] For another consideration of the *pharmakon* in the *MaddAddam* trilogy, see Grayson Cooke, 'Technics and the Human at Zero-Hour: Margaret Atwood's *Oryx and Crake*', *Studies in Canadian Literature/Etudes En Littérature Canadienne* 31, no. 2 (2006): 105–25.

[33] For example, see Tristan Quinn, 'The Immortalist: Uploading the Mind to a Computer', *BBC*, 14 March 2016, accessed 22 October 2018, https://www.bbc.co.uk/news/magazine-35786771.

[34] For information about the so-called *complexity thesis* within science-and-religion, see John Hedley Brooke, 'Science, Religion, and Historical Complexity', *Historically Speaking* 8, no. 5 (2007): 10–13, https://doi.org/10.1353/hsp.2007.0028.

significance of the complex human individual in approaching lived-aspects of science-and-religion, regardless of how abstract (mad scientist; immortality) those concepts may seem.

Humankind versus Nature: Environmentalism, Climate Change, and the Everything Change

With the publication of *The Year of the Flood*, the natural environment of the trilogy's storyworld came to the forefront. The God's Gardeners provide a powerful theme of environmentalism for the second novel of the trilogy, including the interweaving of environmentalism and religion. However, climate change in particular is so pervasive to the trilogy that it can be considered a theme on its own. Indeed, during a 2014 interview with Atwood, the interviewer suggested that climate change be considered a genre of the novels, calling the trilogy 'climate fiction'.[35] Ignoring the issue of genre, Atwood replied, 'I don't even call it climate change, I call it "the everything change".'[36] In this section, the theme of humankind versus nature will be treated with focus on environmentalism, climate change, and 'the everything change'. This section will build upon some of the critiques raised in the section on eco-theology in Chapter 7, explore climate change imagery in the trilogy, review previous scholarship on the trilogy and climate change, then address the impacts of Atwood's suggested theme of *the everything change*. The section will conclude by

[35] Crum, 'A Conversation with Margaret Atwood About Climate Change, Social Media and World of Warcraft'.

[36] Crum.

addressing any implications for science-and-religion raised by exploring the theme of humankind versus nature.

In chapter 7, we explored eco-theology as part of an explanatory approach to science-religion-and-literature, using the *MaddAddam* trilogy. In that chapter, we explored connections between the eco-activist group EarthFirst! and the God's Gardeners. Here, I will argue for a more complex reading of the God's Gardeners and their eco-theology. Considering Atwood's green book tour following the release of *The Year of the Flood*, Nicola Leporini points out that the author's own green practices seem more influenced by social ecology, urban environmentalism, and the environmental justice movement, than by the theories of deep ecology.[37] This is not to invalidate arguments for connections between the God's Gardeners and deep ecology, argued in this thesis and elsewhere; however, it supports a more nuanced approach to the Gardener way-of-life that incorporates more than merely the philosophy of deep ecology. Challenges to a purely deep ecological reading of the Gardeners include strands of ecofeminism and survivalism.

Describing the disagreements between deep ecology and ecofeminism, Michael Zimmerman writes, 'Despite having much in common with deep ecology, a number of ecofeminists maintain that deep ecologists, most of whom are white males, are unaware of the extent to which masculinist bias colors deep ecology theory'.[38] This challenge is borne out in the transition from *Oryx and Crake* to *The*

[37] Nicola Leporini, 'Green Practices: Textual and Extratextual Environmentalism in *The Year of the Flood*', in *Green Canada*, ed. Oriana Palusci, vol. 31, Canadian Studies (Brussels: P.I.E. Peter Lang, 2016), 279.

[38] Zimmerman, *Contesting Earth's Future: Radical Ecology and Postmodernity*, 276.

Year of the Flood and *MaddAddam*. Whereas *Oryx and Crake* focuses on Jimmy and Crake as male protagonists, *The Year of the Flood* has two female protagonists: Toby and Ren. Toby, who continues as the focal character of *MaddAddam*, undergoes a physical alteration when she goes into hiding: '[S]he'd gone in as Toby and had come out as Tobiatha. Less angla, more Latina. More alto …. [H]er new skin, her new abundant hair, her more prominent cheekbones. Her new almond-shaped green eyes.'[39] Although the God's Gardener movement is founded by Adam One (a white male), Gardener belief and practice is shaped and perpetuated by a physically-altered woman (Toby) in the post-apocalyptic world of *MaddAddam*. The survival of many Gardeners and MaddAddamites, the continuation of religion through the Crakers and through the Gardener cult under Toby, and the interbreeding of the Crakers with humans all subvert the deep-ecology-influenced action of Crake.

The second thread we will weave into a more complex reading of the God's Gardeners is that of survivalism. Survivalism has two forms, both of which have already been touched upon, and will thus only be discussed again briefly, here: millenarianism and evolutionary benefit of religion. We discussed millenarianism as it related to Earth First! and the God's Gardeners. Just as certain members of Earth First! believed that only those with an ecological consciousness (meaning Earth First!ers or similar radical environmentalists) would survive and have a place in the post-meltdown world,[40] the God's Gardeners believed that they would survive the Waterless Flood and usher in the new post-apocalyptic age. The evolutionary benefit

[39] Atwood, *The Year of the Flood*, 262.
[40] Lee, *Earth First! Environmental Apocalypse*, 63.

of religion, as portrayed by the survival of various God's Gardeners in *The Year of the Flood*, was explored in Chapter 5 during our discussion of evolutionary literary theory. Evocritic Andrew Hoogheem argues that 'the difference between failure and flourishing in Atwood's post-apocalyptic landscape lies exactly in the extent to which one possesses the adaptive traits that religion has evolved to confer'.[41] Hoogheem specifically points to group solidarity and additional levels of explanation; however, due to the Gardener focus on praxis over belief, one can also easily point to the blatant survival skills taught to Gardeners, including holistic healing with plant remedies, wild and garden botanicals, and urban bloodshed limitation.[42] By the end of *MaddAddam* the only human survivors readers are aware of are God's Gardeners or (splinter-group) MaddAddamites. A reading that incorporates ecofeminism and survivalism is a more nuanced understanding of the environmentalism theme in the *MaddAddam* trilogy than that allowed by a simple alignment of the God's Gardeners and Crake with deep ecology or Earth First!, perhaps suggesting a balance between the varied environmentalist philosophies. However, focusing on the ecological activism of the God's Gardener eco-theology alone misses the climate change realities, themselves, which permeate the trilogy.

The changing (and eventually hostile) climate serves as the backdrop to the *MaddAddam* trilogy. As a child, Jimmy overhears his mother complaining about the environmental changes and their impact, like the beach house 'that got washed away

[41] Hoogheem, 'Secular Apocalypses: Darwinian Criticism and Atwoodian Floods', 66.

[42] Also see Bergthaller, 'Housebreaking the Human Animal: Humanism and the Problem of Sustainability in Margaret Atwood's *Oryx and Crake*', 740. As religion and survivability relate to the Crakers, see Bahrawi, 'Hope of a Hopeless World: Eco-Teleology in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*', 259.

with the rest of the beaches and quite a few of the eastern coastal cities when the sea-level rose so quickly, and then there was that huge tidal wave, from the Canary Islands volcano …. [H]er grandfather's Florida grapefruit orchard that had dried up like a giant raisin when the rains had stopped coming, the same year Lake Okeechobee had shrunk to a reeking mud puddle and the Everglades had burned for three weeks straight.'[43] Jimmy lives through further changes as he grows up, watching as 'the coastal aquifers turned salty and the northern permafrost melted and the vast tundra bubbled with methane, and the drought in the midcontinental plains regions went on and on, and the Asian steppes turned to sand dunes, and meat became harder to come by'.[44] In the post-apocalyptic setting, Jimmy is often hiding from the scorching sun and violent thunderstorms. Clues to environmental devastation continue in *The Year of the Flood*; from the revelation that 'Wisconsin's covered with cow bones, ever since the big drought ten years ago when they'd found it cheaper to butcher the cows rather than shipping them out—the ones that hadn't died on their own',[45] to the warming of the sea which causes 'the Great Dead Zone in the Gulf of Mexico; and the Great Dead Zone in Lake Erie; and the Great Dead Zone in the Black Sea; and the desolate Grand Banks of Newfoundland, where the Cod once abounded; and the Great Barrier Reef, now dying and bleaching white and breaking apart',[46] and more references to rising sea levels and the increasing occurrence of hurricanes.[47]

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[43] Atwood, *Oryx and Crake*, 63.
[44] Atwood, 24.
[45] Atwood, *The Year of the Flood*, 56.
[46] Atwood, 196–97.
[47] Atwood, 412.

It should not be surprising that many Atwood critics have picked up on the importance of climate change and environmentalism. Many have focused their analyses on the eco-religion of the God's Gardeners and the different environmental philosophies expressed within the trilogy.[48] Others have focused on the ability of Atwood's fiction to change readers' actions, with emphases, for example, on encouraging activism in literary students,[49] raising eco-consciousness,[50] and debating the appropriateness and effectiveness of eco-apocalypticism in addressing climate change.[51] However, those critics who focus most specifically on climate change (rather than environmentalism, eco-religion, and activism), also bring economic systems into their discussion.[52]

Between the publication of *Oryx and Crake* and *The Year of the Flood*, Atwood published *Payback: Debt and the Shadow Side of Wealth*. Atwood writes that '[t]he subject of *Payback* is one of the most worrisome and puzzling things I know: that

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[48] For example of the latter, see Jayne Glover, 'Human/Nature: Ecological Philosophy in Margaret Atwood's *Oryx and Crake*', *English Studies in Africa* 52, no. 2 (2009): 50–62, https://doi.org/10.1080/00138390903444149; Ridout, 'Margaret Atwood's Straddling Environmentalism'; Bouson, 'A "Joke-Filled Romp" Through End Times: Radical Environmentalism, Deep Ecology, and Human Extinction in Margaret Atwood's Eco-Apocalyptic *MaddAddam* Trilogy'.

[49] For example, see Murray, 'The Pedagogical Potential of Margaret Atwood's Speculative Fiction: Exploring Ecofeminism in the Classroom'; Gina Wisker, 'Nothing Wasted: Engaging Values and the Imagination: How Can Working with Feminist Speculative Fictions Enthuse and Engage Students with Social Justice and Sustainability in an Age of Austerity?', *Journal of Gender Studies* 23, no. 3 (2014): 302–16, https://doi.org/10.1080/09589236.2014.909721.

[50] For example, see Fatemeh Azizmohammadi and Hamedreza Kohzadi, 'The Impact of Anthropocentrism on Natural Environment from the Perspective of Margaret Atwood', *Anthropologist* 17, no. 2 (2014): 647–53.

[51] For example, see Sawyer, 'Science and Salvation: "Human Ingenuity Will Give All of Us a Wonderful Future"'; Sophia David, 'The Apocalyptic Depiction of Climate Change and Its Usefulness to Pro-Environmental Behaviour' (Master's Dissertation, The University of Edinburgh, 2011).

[52] For example, see Bouson, '"We're Using Up the Earth. It's Almost Gone": A Return to the Post-Apocalyptic Future in Margaret Atwood's *The Year of the Flood*'; Canavan, 'Hope, But Not for Us: Ecological Science Fiction and the End of the World in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*'; Amelia Defalco, '*MaddAddam*, Biocapitalism, and Affective Things', *Contemporary Women's Writing* 11, no. 3 (2017): 432–51, https://doi.org/10.1093/cwwrit/vpx008.

peculiar nexus where money, narrative or story, and religious belief intersect, often with explosive force'.[53] One might wonder how this description fits with Atwood's ecological interests, and, indeed, the environment seems hidden in the background—that is, until the end of the book when Atwood tells the story of Scrooge Nouveau. Unlike Scrooge Original, who hordes all his money, Scrooge Nouveau spends it on himself. Scrooge Nouveau lives in the twenty-first century, owns many corporations, is married to his fifth (much younger) wife, and believes that '[h]e owes [the mysterious] "it" to himself, but, by extension, he doesn't owe a plugged nickel to anyone else'.[54] Parodying Scrooge Original's story, Scrooge Nouveau is also visited by three spirits; however, these are the spirits of Earth Day Past, Present, and Future—the final spirit being, initially, a cockroach before moving closer in future-time, to a period in which humans still exist.[55] When Scrooge Nouveau challenges the connection between economics and the earth, the spirit of Earth Day Past claims: 'All wealth comes from Nature. Without it, there wouldn't be any economics. The primary wealth is food, not money.'[56] Scrooge Nouveau learns, to his surprise, that he actually *is* in debt. Picking up on the importance of economics in Atwood's writing, Chris Vials argues that the *MaddAddam* trilogy critiques neoliberalism, as the storyworld 'is one where the utopian dream of the self-regulating market has been achieved; but despite the absence of the nation-state, it is nonetheless a tyranny at

[53] Margaret Atwood, *Payback: Debt and the Shadow Side of Wealth* (Toronto: Anansi, 2008), 2.

[54] Atwood, 176.

[55] Atwood, 197.

[56] Atwood, 182.

the level of lived experience even for the privileged'.[57] Indeed, according to Fredric Jameson, '[i]t seems to be easier for us today to imagine the thoroughgoing deterioration of the earth and of nature than the breakdown of late capitalism'[58]—such is its tyranny, even upon our minds. In his review of *The Year of the Flood*, Jameson equates the neoliberal world of the *MaddAddam* trilogy with Americanism: 'The Fall is not properly grasped unless it is understood to be a fall into Americanism … "American" is also technology, mechanisation, mass production … This then is the world of Atwood's dystopia, for which, in this global near future, the term American is no longer necessary'.[59] Gerry Canavan argues that *Oryx and Crake* and *The Year of the Flood* 'seek to open up new space for imagining a post-capitalist future through a satirical, science-fictional staging of capitalism's final, catastrophic breakdown—and the subsequent emergence of other kinds of lives, after the end of history'.[60] Trying to bring the topics of economics, environment, and religion together, as they relate to the trilogy, Shannon Hengen claims that '[t]o have a concept of moral and environmental debt, humankind must have a sense of responsible behaviour, a sense that acknowledges and accepts our dependence upon one another—our vulnerability—and the interconnection of ourselves with nature'.[61] Such a reading of the trilogy suggests that it is more about science and economics than it is about science and religion. Religion becomes, rather, the means to enact a

[57] Vials, 'Margaret Atwood's Dystopic Fiction and the Contradictions of Neoliberal Freedom', 240.

[58] Fredric Jameson, *The Seeds of Time* (New York: Columbia University Press, 1994), xii.

[59] Jameson, 'Then You Are Them'.

[60] Canavan, 'Hope, But Not for Us: Ecological Science Fiction and the End of the World in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*', 139.

[61] Hengen, 'Moral/Environmental Debt in *Payback* and *Oryx and Crake*', 79.

completely different way of living and acting in the world—a way that would avert devastating climate change.

This connection between addressing climate change and addressing the economic philosophies driving humanity's depletion and destruction of the earth brings us back to Atwood's insistence that her trilogy is not about climate change but about 'the everything change'. Continuing in her response to the *Huffington Post* interviewer in 2014, Atwood clarifies, 'It's a change of everything. We think climate and we think, more clouds, more rain, oh, who cares. The everything change can never be the front and center of a book because it's not a human being. It can be something people talk about, something people undergo, something that impacts how people live …. But we're programmed to think in the short term and get from today to tomorrow rather than from today to 50 years from now.'[62] The everything change is, thus, something that Atwood presents in the *MaddAddam* trilogy through the effects it has upon the lives of her characters. Indeed, much more than the climate has changed in the *MaddAddam* trilogy. In *Oryx and Crake*, in a paragraph immediately following a recounting of climate-changes, the following nostalgic questioning ensues: 'Remember when you could drive anywhere? Remember when everyone lived in the pleeblands? Remember when you could fly anywhere in the world, without fear? Remember hamburger chains, always real beef, remember hot-dog stands? Remember before New York was *New* New York? Remember when

[62] Crum, 'A Conversation with Margaret Atwood About Climate Change, Social Media and World of Warcraft'.

voting mattered?'[63] In *The Year of the Flood*, we learn of the secession of Texas from the Union in the context of climate change: 'A lot of Texas refugees had turned up after the hurricanes and then the droughts. They were mostly illegal.'[64] The relevant point to notice here is that the change in climate is accompanied by a change in society (regardless of causation). Neoliberalism, environmental degradation, and climate change go together in the *MaddAddam* trilogy. During his study of the God's Gardeners, Gerry Canavan points out the astounding number of the eco-religious group that survive the Waterless Flood. Canavan claims that they survived because they saw disaster coming and chose to change. He continues:

> But Atwood's answer is not that we must all become eco-religious separatists either, anymore than we all must become Crakers; her book is not best understood as a blueprint for utopia, nor as a Bible for the world to come. Rather, I read *Oryx and Crake* and *The Year of the Flood* as asserting through allegory the urgent necessity of radically changing our social relations and anti-ecological lifestyles—of choosing to make a better *social* world before it is too late for the natural one.[65]

Although I disagree with Canavan about reading the trilogy merely as allegory, especially when it comes to the God's Gardeners, I agree with his understanding of the message of the trilogy being about radically changing our social relations and anti-ecological lifestyles. 'The everything change' will impact the entire lifestyles of individuals and the structure of society, but in order to avoid such catastrophic changes we must make an 'everything change' of our own. Stopping climate change

[63] Atwood, *Oryx and Crake*, 63. Italics original.

[64] Atwood, *The Year of the Flood*, 76.

[65] Canavan, 'Hope, But Not for Us: Ecological Science Fiction and the End of the World in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*', 155. Italics original.

demands a drastic change—an 'everything change';[66] as Atwood has stated before, environmentalism must possess the worldview power of a religion before it can become effective.[67]

Considering 'the everything change' that will either be forced upon humanity by climate change or enacted by humanity in an effort to avoid eco-apocalypse, we now turn to one of the potential changes that Atwood's trilogy suggests: reassessing what it means to be human (or post- or trans-human). It is to this theme that the next section is dedicated.

What Does it Mean to be Human?

Referring to the fourth book of *Gulliver's Travels*—the book from which Atwood draws her first epigraph for *Oryx and Crake*—Atwood writes in *In Other Worlds* that in relating his interactions with the rational and moral horse-like Houyhnhnms, Gulliver draws close 'to the heart of Swift's matter: what it is to be human'.[68] Not only is this the heart of Swift's matter, but it also seems to be the heart of Atwood's matter, for the theme of what it is to be human is further emphasised by the second epigraph opening *Oryx and Crake*.

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[66] Consider the special report released by the Intergovernmental Panel on Climate Change in October 2018, which suggests limiting the increase in global temperatures to 1.5 degrees Celsius above pre-industrial levels, despite the fact that '[r]ealizing 1.5ºC-consistent pathways would require rapid and systemic changes on unprecedented scales'. H. de Coninck et al., 'Strengthening and Implementing the Global Response', in *Global Warming of 1.5°C: An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty*, ed. V. Masson-Delmotte et al., In Press, 322.

[67] Wagner, 'The Conversation: Margaret Atwood'.

[68] Atwood, *In Other Worlds: SF and the Human Imagination*, 209.

The second epigraph comes from *To the Lighthouse*: 'Was there no safety? No learning by heart of the ways of the world? No guide, no shelter, but all was miracle and leaping from the pinnacle of a tower into the air?'[69] *To the Lighthouse* is a 1927 novel by Virginia Woolf. The novel is centred upon the Ramsay family and their guests. The novel includes very little dialogue and action, rather most of it is written as internal thoughts and observations. Woolf wanted to call *To the Lighthouse* an *elegy* rather than a *novel*, and within her notes for the novel wrote, 'All character—*not* a view of the world.'[70] The narrative is concerned with vantage points and perceptions, emphasising frames and how such frames determine how we see. *To the Lighthouse* is exemplary for its use of multiple focalisation, which can be considered to destabilise univocal grand narratives. The novel has much to do with endings due to its themes of death and loss. It also portrays recurrences, as a number of things happen twice. Woolf commented that she wanted the sea to be heard all through it.[71]

The specific quote in the epigraph comes from the third section of the novel, 'The Lighthouse', and is drawn from the inner thoughts of Lily Briscoe, who is, by this point in the story, a middle-aged, unwed painter. Lily finds herself crying over the loss of Mrs Ramsay, and she is internally addressing the elderly Mr Carmichael, who is silently reclining on a chair next to her. Her silent questions of the old man concern the nature of life and reality, a reality which involves the death of Mrs Ramsay.

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[69] Atwood, *Oryx and Crake*, xv; Virginia Woolf, *To the Lighthouse*, Annotated ed. (London: Penguin Books, 1992), 195.

[70] Hermione Lee, 'Introduction', in *To the Lighthouse*, by Virginia Woolf, Annotated ed. (London: Penguin Books, 1992), xiv. Emphasis original.

[71] Lee.

Following the lines quoted in the epigraph, Lily continues: 'Could it be, even for elderly people, that this was life?—startling, unexpected, unknown?'[72] This existential crisis and questioning is one shared by Jimmy, the focaliser of *Oryx and Crake*. However, considering the entire trilogy in relation to *To the Lighthouse*, further parallels can be found. Parallels between the two works include: multiple focalisation, repetition (in the *MaddAddam* trilogy, the story of the Waterless Flood is told in all three books, but there is also repetition within books, such as the opening to the first and last chapters of *Oryx and Crake*[73]), two blocks of narration joined by a corridor of time (in *To the Lighthouse*, the main sections 'The Window' and 'The Lighthouse' are connected by the short section 'Time Passes'; in the *MaddAddam* trilogy, the pre- and post-apocalyptic storylines are connected by the relatively short apocalyptic event itself; furthermore, the books *Oryx and Crake* and *MaddAddam* are connected by the book *The Year of the Flood*—note the structural similarity in the titles of two blocks connected joined by a corridor of time),[74] themes of loss and death, the challenge of subjectivity and perceptions, a sense of hope in tomorrow (in *To the Lighthouse*, the phrase 'it will be fine tomorrow';[75] in *MaddAddam*, the phrases 'tomorrow is another day' and is 'a thing of hope'[76]), the phrase 'I have had

[72] Woolf, *To the Lighthouse*, 195.
[73] See Atwood, *Oryx and Crake*, 3, 371.
[74] For a reference by Woolf to two blocks connected by a corridor, see Lee, 'Introduction', xiv.
[75] Woolf, *To the Lighthouse*, 19.
[76] Atwood, *MaddAddam*, 390.

my vision'[77] (in *MaddAddam* 'You've had your vision'[78]), and the explicit mention of *To the Lighthouse* as a work of art in *Oryx and Crake*.[79]

Considering the two books from which the epigraphs are drawn, *Gulliver's Travels* and *To the Lighthouse*, one primary theme that can be drawn from them and from the *MaddAddam* trilogy is the question of what it means to be human. In this section, we will identify three ways in which this theme is explored: storytelling, posthumanism, and the blurring of boundaries between human and non-human.

Storytelling is a prominent part of Jimmy's interactions with the Crakers in *Oryx and Crake*, and storytelling is foregrounded in *MaddAddam*, with Toby listening to Zeb's story and telling stories to the Crakers. The spiritual development, in mythic form, of the Crakers could be said to have begun with the question of who made them—a question they were designed not to ask, yet did.[80] Subsequent development of their mythology is encouraged by Jimmy's actions, who is left in charge of the Crakers in the post-human world. When Jimmy first introduces himself to the Crakers, he is faced with the challenge of explaining the world beyond their artificial home. Initially, his responses are drastically simplified or slanted truths, such as, 'I come from the place of Oryx and Crake …. Crake sent me …. Oryx and Crake wish you to have a better place than this.'[81] However, Jimmy's descriptions quickly become

[77] Woolf, *To the Lighthouse*, 226.
[78] Atwood, *MaddAddam*, 223.
[79] Atwood, *Oryx and Crake*, 187.
[80] Atwood, 311. It is possible that rather than asking such a question on their own, Oryx's interaction with the Crakers somehow imprinted a need for story. Oryx—at least as she is mediated by Jimmy and the narrator—is a storyteller (of her origin story). However, the text does not give us enough insight into the specific interactions of Oryx with the Crakers to determine whether or not she imparted Crake's lessons to them via story.
[81] Atwood, 349.

metaphors, which the Crakers seem to take literally. For example, when questioned about the dead bodies that litter roads, Jimmy claims, 'It's part of the chaos …. Crake and Oryx are clearing away the chaos, for you—because they love you.'[82] Soon mythic stories develop, such as the following:

> Crake made the bones of the Children of Crake out of the coral on the beach, and then he made their flesh out of a mango. But the Children of Oryx [the animals] hatched out of an egg, a giant egg laid by Oryx herself. Actually she laid two eggs: one full of animals and birds and fish, and the other one full of words. But the egg full of words hatched first, and the Children of Crake had already been created by then, and they'd eaten up all the words because they were hungry, and so there were no words left over when the second egg hatched out. And that is why the animals can't talk.[83]

Next, ritual develops around the telling of such stories: first, the sacrifice of a fish for Jimmy to eat; then a story, which always begins with a depiction of chaos. This depictions involves a pail of water, dirt being mixed into it, and then overturning the pail of dirtied water onto the ground: 'And this is how Crake did the Great Rearrangement and made the Great Emptiness.'[84] The climax of the Crakers' religiosity—at least within the first novel—comes when the Crakers attempt to retrieve an absent Jimmy, with the aid of an effigy, chanting, and refuse percussion instruments. Jimmy had never seen the Crakers portray such symbolic thinking of their own before. Furthermore, the Crakers have begun, at this point, to assert their own religious interpretations, claiming, for example, that Jimmy had been to the sky, where Crake lives, and that Jimmy is therefore now almost like Crake.[85] The self-

[82] Atwood, 352.
[83] Atwood, 96.
[84] Atwood, 103.
[85] Atwood, 360–62.

interpretation and ritualisation of their religion continues in *MaddAddam*. This includes the greater prominence of singing and dreams, the use of talismans to facilitate storytelling, the identification of a new deity (Fuck), the taking over of their own myths and storytelling responsibilities (Blackbeard is the first Craker in this role), and the move from oral to written myths (the Book). Needless to say, none of this was part of Crake's articulated bioengineering plan.

Thinking about the Crakers as bioengineered beings who develop a religious mythology, I would contend that the trilogy is not intended to be read as a philosophical text on bioethics, a scientific study of genetics, or a report on genetic technologies. It relates to those topics and incorporates them; however, when considering the Crakers, the pertinent connection to our non-fictional world is that of myth or story. One could perspicaciously ask of the text: How does the mythology of the Crakers relate to our own forms of spirituality and religion? Does their story-based conception of reality reflect our own? Are the Crakers just as human as us despite their different genetic constitution? My answers to these questions would be as follows: the mythology of the Crakers reflects the myths essential to human religions, but even more importantly, it reflects human dependence upon myth even beyond religious belief, especially when myth is understood as a story or narrative of particular importance to self or society in a manner that can engage the whole of human experience, as explored in Chapter 5; therefore, their story-based conception of reality does indeed reflect our own; and the Crakers do share humanity with us despite our genetic differences, as long as what is human is understood through the critiques of posthumanism, as discussed in Chapter 5. For Atwood, human religiosity,

as well as basic human be-ing, is closely linked with language and story. As Atwood states in an interview, '[W]e want a beginning of the story … [w]e want an end to the story … [w]e want to be able to place ourselves within a larger story …. The story without God is about atoms … the universe without an intelligence in it has got nothing to say to us …. We like the story with God in it better than we like the story without God in it because it's more like us; it's more understandable; it's more human.'[86] Because the Crakers share human language and storytelling affinities, they share in what it means to be human. Even though the MaddAddamites debate the humanity of the Crakers based upon their (as yet unknown) ability to successfully reproduce offspring with the surviving humans, the human status of the Crakers established by the end of *Oryx and Crake* through storytelling is merely reinforced in *MaddAddam* with the successful birth of four Craker-human hybrid babies and the creation of the Book. However, the suggestion that Crakers are human demands for what it means to be human to be reassessed under the question of what it means to be post-human.

Post-humanism was discussed in-depth in Chapter 5, as it resides at an intersection of literature and science; however, we will review it briefly, here. Post-humanism refers to more than just the human body or the species, but also to the philosophical discourse in opposition to humanism. Under post-humanism, the humanist assumptions that humans are knowable and reasonable is determined to be false, and the dividing line between human and non-human is understood to be

[86] Atwood, Faith and Reason: Margaret Atwood and Martin Amis.

difficult to delineate, as well as permeable. The reader is presented with many different ideas of what is *post-human* in the *MaddAddam* trilogy. The options include: a world without humanity in it (a thriving environment after humanity ceases to exit), various trans-human creatures (the Crakers and pigoons or the human-Craker hybrid babies born at the end of *MaddAddam*), people who have ceased to be people (the Painballers), people attempting to live in harmony with the environment (the God's Gardeners), or humanity living in interspecies cooperation (the community of Gardeners, MaddAddamites, Crakers, hybrid children, and pigoons at the close of *MaddAddam*). The theme of post-humanism is so vivid in the *MaddAddam* trilogy that the number of critics writing on this theme rivals that of those writing on environmentalism.[87]

Concerning the Crakers, as introduced to readers in *Oryx and Crake*, Atwood writes, 'They are designer people. But anyone who engages in such designing—as we are now doing—has to ask, How far can humans go in the alteration department before those altered cease to be human? Which of our features are at the core of our being? What a piece of work is man [*sic*], and now that we ourselves can be the

[87] For notable examples, see Bouson, '"It's Game Over Forever": Atwood's Satiric Vision of a Bioengineered Posthuman Future in *Oryx and Crake*'; Cooke, 'Technics and the Human at Zero-Hour: Margaret Atwood's *Oryx and Crake*'; Adami, 'Between Bioethics and Literature: Representations of (Post-)Human Identities in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*'; Valeria Mosca, 'Crossing Human Boundaries: Apocalypse and Posthumanism in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*', *Altre Modernità* 9, no. Apocalisse 2012 (May 2013): 38–52; Bahrawi, 'Hope of a Hopeless World: Eco-Teleology in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*'; Ciobanu, 'Rewriting the Human at the End of the Anthropocene in Margaret Atwood's *MaddAddam* Trilogy'; Narkunas, 'Between Words, Numbers, and Things: Transgenics and Other Objects of Life in Margaret Atwood's *MaddAddam*'; Jane Bone, 'Environmental Dystopias: Margaret Atwood and the Monstrous Child', *Discourse: Studies in the Cultural Politics of Education* 37, no. 5 (2016): 627–40, https://doi.org/10.1080/01596306.2015.1075701.

workmen [*sic*], what pieces of this work shall we chop off?'[88] Crake considers the post-human project to be one of trans-humanism, which the post-humanist critic Carey Wolfe considers bad post-humanism because it is 'an *intensification* of humanism'.[89] Thus, Crake questions which aspects of human biology can and should be altered, and he uses science to make his chosen alterations. However, post-humanist critics, such as N. Katherine Hayles, Donna Haraway, and Karan Barad, would argue that we are already post-human. Considering the *MaddAddam* trilogy, we already have the capacity to make the same life choices as the God's Gardeners, attempting to live out environmentalism as a religion, and to live in communities of interspecies cooperation like the community at the close of *MaddAddam*. Perhaps one of the most interesting aspects of post-humanist criticism is the identification of blurred boundaries between humans and non-humans—something also evident within the *MaddAddam* trilogy.

The lines between human and non-human are often blurred within the trilogy.[90] I identify four different models through which to understand a human/non-human boundary. The first model is men (as human) delineated from women and animals (as non-human). Women are often portrayed throughout the trilogy as

[88] Atwood, *In Other Worlds: SF and the Human Imagination*, 91.

[89] Cary Wolfe, *What Is Posthumanism?*, xv. Italics original.

[90] For articles exploring this topic in various ways, see Jovian Parry, '*Oryx and Crake* and the New Nostalgia for Meat', *Society and Animals* 17 (2009): 241–56, https://doi.org/10.1163/156853009X445406; DiMarco, 'Going Wendigo: The Emergence of the Iconic Monster in Margaret Atwood's *Oryx and Crake* and Antonia Bird's *Ravenous*'; Sanderson, 'Pigoons, Rakunks and Crakers: Margaret Atwood's *Oryx and Crake* and Genetically Engineered Animals in a (Latourian) Hybrid World'; Shelley Boyd, 'Ustopian Breakfasts: Margaret Atwood's *MaddAddam*', *Utopian Studies* 26, no. 1 (2015): 160–82, https://muse.jhu.edu/article/579273; Alan Northover, 'Strangers in Strange Worlds: Margaret Atwood's *MaddAddam* Trilogy', *Journal of Literary Studies* 33, no. 1 (2017): 121–37, https://doi.org/10.1080/02564718.2017.1290384.

animal-like: we do not know Oryx's name beyond her extinct animal-name, *Oryx beisa*; women at Scales and Tails are dressed as animals for sexual consumption by men; and men refer to women as meat ('but you could be pretty and still get called … a meat-hole on legs by those boys; they had a bunch of sick names for girls'[91]). Women are aligned with animals visually, but also in reference to being eaten. Meat consumption is a significant point of contention within the trilogy due to the eating habits of the God's Gardeners. The Gardeners do not eat meat of any kind, unless their survival is threatened. However, the blurring of the lines in relation to what is and is not to be eaten is accomplished within the trilogy by the act of cannibalism (humans ground into SecretBurgers and Zeb eating a part of Chuck[92]) and humans becoming the devoured rather than the domesticated animal (Jimmy imagines the pigoons viewing his body as 'a delicious meat pie just waiting to be opened up'[93]). In *Oryx and Crake*, Jimmy seems to be focused on the second model of blurred boundaries between human and non-human: a continuum that spreads from humans, to Crakers, to pigoons, to animals (as completely non-human); Crakers are closer to humans, and pigoons are closer to animals. As an adult, this continuum seems to be based for Jimmy upon differing amounts of human tissue found within Crakers and pigoons. By the end of *MaddAddam*, two more models appear. The third model includes humans, pigoons, and Crakers in a mutual relationship of human-like status. This alliance is formed in opposition to the Painballers, who are considered to

[91] Atwood, *The Year of the Flood*, 86.
[92] Atwood, *MaddAddam*, 70.
[93] Atwood, *Oryx and Crake*, 268.

be less than human because of their time in Painball ('they're not really human'[94]; 'Anyone who'd survived Painball more than once had been reduced to the reptilian brain'[95]; 'there's nothing left of their empathy circuits'[96]; comparison with an 'alpha-chimp'[97]; 'soul-dead neurotrash'[98]). The fourth model is that of human to Craker-human hybrid to Craker; this is the result of the inter-breeding (both accidental and intended) between Craker men and three of the surviving human women. By the end of the trilogy, models one and two have been completely replaced by models three and four. The conclusion to be drawn from these blurring of the lines between what is human and what is not human is a definition of the human based upon social relations of interspecies cooperation. Humanity (under humanism) is considered to dominate and devour that which is non-human (however defined); however, post-humanity (under posthumanism) is considered as part of nature (and thus always already aligned with that which is traditionally non-human). In the posthumanism of the *MaddAddam* trilogy, then, humanity is a hybrid (whether physically, socially, or philosophically), storytelling creature who lives in communities of interspecies cooperation.

In answer to what it means to be human, the *MaddAddam* trilogy suggests that to be human is: to possess a subjective inner life that looks and comments upon the external universe, to observe and comprehend the universe through storied minds, to express such understandings of the universe through myths, and to

[94] Atwood, *The Year of the Flood*, 362.
[95] Atwood, *MaddAddam*, 9.
[96] Atwood, 144.
[97] Atwood, 298.
[98] Atwood, 368.

acknowledge and live in such a way as to accept our interconnectedness with that which is non-human, as exemplified through inter-species cooperation and hybridity. This theme of what it means to be human is a common one found within science-and-religion dialogue; however, the post-humanist answer that Atwood's trilogy provides diverges from common discussions found in theological anthropologies often presented in dialogues dominated by Christian theology and thus interested in understanding the *imago Dei.* However, this is an understanding of the human that would be neither alien to nor useless in eco-theological discourse attempting to articulate relations between humanity and the rest of creation. Furthermore, the theme of what it means to be human, so commonly found within literary works, highlights human subjectivity and the lived-experiences of individuals—concepts less often discussed in the science-and-religion field and which will be the focus of Chapter 9.

Conclusion

This chapter is our first example of a revelatory approach, using literary themes. The revelatory approach uses particular texts, but does not require studying the entire corpus of a literary author or the study of a single theme across multiple texts by multiple authors. The revelatory approach, in distinction from the explanatory approach, seeks to offer something from literature (using the tools of literary analysis or literary theory) to the science-and-religion field, hence being a literature-in-science-and-religion method.

The study of these themes in the *MaddAddam* trilogy were drawn from a study of the literary texts first and foremost, rather than being initially drawn from interest in the concerns of the science-and-religion field; connections to the science-and-religion field were assessed after study of the themes found to arise in the trilogy.[99] This is what enables the approach in this chapter to be revelatory rather than explanatory, as in the previous chapter. However, the themes arising in the *MaddAddam* trilogy—the search for immortality, humanity versus nature, and what it means to be human—do not prove to be new contributions to the science-and-religion field. Thus, a focus on themes within the *MaddAddam* trilogy appears to be only mildly revelatory in effect. This mild effect is dependent upon the content of particular literary texts chosen for study, revealing the role that content plays within science-religion-and-literature. However, the themes from the *MaddAddam* trilogy examined above consistently focus on humanity, reminding us of the subjective individual at the centre of science-and-religion discourse. Therefore, a second focus for a revelatory approach, that of characterisation, will be attempted in the next chapter, which builds upon the human-focused themes explored in this chapter, in an attempt to portray a more effectually revelatory approach within science-religion-and-literature.

[99] Due to subjectivity, it must be admitted that my reading and analysis of the trilogy is as someone acquainted with the science-and-religion field. All of my experience and knowledge dictates which themes I am able to discern within any text. There will be more themes in the trilogy than the ones that I have explored in this chapter.

Chapter 9

Revelatory Approach to the *MaddAddam* Trilogy: Characterisation

Introduction

This chapter provides a second example of a revelatory approach within the science-religion-and-literature field, using the case study of the *MaddAddam* trilogy. As stated in the previous chapter, the revelatory approach uses particular literary texts and is intended to be a literature-in-science-and-religion method. The revelatory approach, like the explanatory approach, does not require study of an author's entire corpus or study of a theme across multiple texts by multiple authors. The revelatory approach in this chapter will use characterisation, considering the lived experience of science-and-religion (what I will call *science-and-religion-as-lived*) of three focalising characters from the *MaddAddam* trilogy: Jimmy, Ren, and Toby. Such study will highlight three aspects of science-and-religion-as-lived that arise from the following study of these characters: agency of those who are not influencers of society, the importance of praxis over theory, and embodiment.

Characterisation in Narrative Fiction: Lived Experiences

The two great components of narrative are character and action. Which is more important is often debated; however, it seems appropriate to maintain that both are connected and necessary: in the words of Henry James, 'What is character but the determination of incident? What is incident but the illustration of

character?'[1] Characters are understood as having agency: 'they cause things to happen'.[2] Conversely, as the agents within a narrative 'drive the action, they necessarily reveal who they are in terms of their motives, their strengths, weakness, trustworthiness, capacity to love, hate, cherish, adore, deplore, and so on'.[3] The term *character* describes 'a more or less coherent personality, an interconnected set of traits, dispositions, virtues and vices, likes and dislikes, characteristic ways of behaving, and so forth'.[4] This understanding of character can be applied to fictional and nonfictional entities.

Fictional characters are sets or combinations of particular properties.[5] Although people can be considered characters (in the sense of possessing character), fictional characters should not be thought of as individual persons.[6] In order to talk about fictional characters, Peter Lamarque differentiates between an '*internal perspective*, that from within stories' and an '*external perspective*, that from the real world'.[7] From the internal perspective, fictional characters are indeed ordinary people and the name of the character, when used by another character, functions as an ordinary name denoting an ordinary person. However, from the external perspective, fictional characters are only imagined as actual people, and the name of a character, when used by an author or informed reader, functions to define the

[1] Henry James, 'The Art of Fiction', *Longman's Magazine*, 1884, 512.

[2] H. Porter Abbott, *The Cambridge Introduction to Narrative*, 2nd ed. (Cambridge: Cambridge University Press, 2008), 131.

[3] Abbott, 131.

[4] Anthony Rudd, *Self, Value, and Narrative: A Kierkegaardian Approach* (Oxford: Oxford University Press, 2012), 19.

[5] Lamarque, *Fictional Points of View*, 36–39.

[6] Lamarque, 32–39.

[7] Lamarque, 32. Italics original.

fictional character, as presented and identified within a story.[8] As characters in a fictional setting, such entities 'can be said to exist, but only as *abstract* entities, as conceptions, kinds, or sets of properties'.[9]

According to narrative scholar H. Porter Abbott, '[c]haracters are, usually, harder to understand than actions' because '[w]e cannot see inside character'; rather, '[w]e must infer'.[10] Therefore, characters 'are themselves some of narrative's most challenging gaps'.[11] The construction of character is, therefore, contingent upon the reader, in addition to the narrative presentation.[12] Readers draw on what they 'know about actual people—those, for example, similar in significant respects—to "round out" the characters with supplementary properties'.[13] Readers will have, therefore, recognised in their real acquaintances many of the properties, or significant combinations of them, constituting fictional characters.[14] The flow back and forth between fictional characters and persons who are characters has significance for how fiction can be realistic: 'A fiction is realistic if it describes characters with combinations of properties that would not be strange or out of place if exemplified in individuals in the real world.'[15] The act of literary characterisation, therefore, can be understood as 'the construction of characters [by authors], through language, by formulating descriptions that pick out defining clusters of

[8] Lamarque, 32–34.
[9] Lamarque, 35. Italics original.
[10] Abbott, *The Cambridge Introduction to Narrative*, 132–33.
[11] Abbott, 132.
[12] Abbott, 134. This is how character is ascertained in nonfictional contexts, as well. See Abbott, 134–36.
[13] Lamarque, *Fictional Points of View*, 37.
[14] Lamarque, 36–37.
[15] Lamarque, 38.

characteristics';[16] simultaneously, it is the construction of characters by readers through the process of reading the narrative (with its action) written by the author and through the use of their imagination, developed through encounters with actual people, to fill the gaps with supplementary properties.

Character is important in engaging with science fiction texts, as well. Commenting on the focus of science fiction novel writing, Ursula Le Guin writes that '[t]he character is primary': 'The writers' interest is no longer really in the gadget, or the size of the universe, or the laws of robots, or the destiny of social classes, or anything describable in quantitative, or mechanical, or objective terms …. Their subject is the subject, that which cannot be other than subject: ourselves. Human beings.'[17] This comment applies well to the *MaddAddam* trilogy. Although Atwood incorporates science and technology, such as genetics (even if considered a sensationalised version of it), into her novel, providing one of the impetuses for labelling her work science fiction, her main focus is not the fields of science or technology, but, rather, that of the human lives of her characters as they interact with science and technology, such as the scientific study of genetics or the products of genetic engineering ('The everything change can never be the front and center of a book because it's not a human being.'[18]). The *MaddAddam* trilogy, whilst being science fiction, is also composed of three novels. Novels are considered to have a greater degree of realism than the romance, fuller development of characters and

[16] Lamarque, 37.

[17] Le Guin, 'Science Fiction and Mrs Brown', 92–93.

[18] Crum, 'A Conversation with Margaret Atwood About Climate Change, Social Media and World of Warcraft'.

themes than short stories and novellas, and are usually expected to have at least one character shown in the processes of change and social relationships and a plot.[19] The form of the novel is one that, relevant to the intentions of this chapter, brings character to the forefront. Critic Chris Vials claims that Atwood 'provides us with complex psychological portraits of individuals and the dynamic social environments which stamp these characters, using accessible language that generally does not call attention to itself as signification (and unlike much science fiction, the emphasis is on social relationships, not the technology or the exoticism of the setting)';[20] such character development leads Vials to argue that Atwood's fictions falls near the project of literary realism.

The process of literary characterisation within this chapter will be to focus on the lived experiences of characters within the trilogy. In Lamarque's understanding of character, we will be studying the characters using an internal perspective, such that we can refer to the characters as persons who are capable of experiencing the world around them (what we might call the storyworld from an external perspective). Due to the interest in science-and-religion, specific interest will be in understanding how science and religion relate in each character's lived experience. Studying lived experience is also an approach used within the social sciences, and it is hoped that what we learn from studying fictional characters can reveal something to the nonfictional field of science-and-religion.

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[19] For a definitional example, see Chris Baldick, 'Novel', *The Oxford Dictionary of Literary Terms* (Oxford: Oxford University Press, 2015).

[20] Vials, 'Margaret Atwood's Dystopic Fiction and the Contradictions of Neoliberal Freedom', 239.

In her book, *Lived Religion: Faith and Practice in Everyday Life*, Meredith B. McGuire offers a convincing argument for the value of studying 'how religion and spirituality are practiced, experienced, and expressed by ordinary people (rather than official spokespersons) in the context of their everyday lives'.[21] McGuire uses the term 'lived religion' to distinguish the experiences of religious persons from institutionally defined beliefs and practices, as well as noting that 'religion-as-lived' is based more on religious practice than upon religious ideas or beliefs.[22] McGuire summarily writes, 'At the level of the individual, religion is not fixed, unitary, or even coherent. We should expect that all persons' religious practices and the stories with which they make sense of their lives are always changing, adapting, and growing.'[23] It should be noted that the above reference to coherency is more specifically to logical coherency; lived religion requires practical coherence, rather than logical coherence. According to McGuire, focusing on religion-as-lived 'necessitates examining not only people's beliefs, religious ideas, and moral values (i.e., cognitive aspects of individual religion) but also, and more important, their everyday spiritual practices, involving their bodily and emotional, as well as religious, experiences and expressions.'[24] McGuire claims that by examining lived religion 'we may get closer to understanding individual religion in all its complexity and diversity.'[25] It is from McGuire's study that I adapt the term *science-and-religion-as-lived*. In her book,

[21] Meredith B. McGuire, *Lived Religion: Faith and Practice in Everyday Life* (Oxford: Oxford University Press, 2008), 12.

[22] McGuire, 12, 15.

[23] McGuire, 12.

[24] McGuire, 16–17.

[25] McGuire, 16.

McGuire considers an historical case study (mediaeval Europe) and two contemporary case studies, involving US Latinos and Latinas and Southern US white evangelicals. Following her case studies, she considers the importance of materiality for lived religion, as it relates specifically to healing and gendered spiritualities. Her final chapter considers religious identity, as it incorporates hybridity, claiming that 'all religions are necessarily syncretic and continually changing, as people try to make sense of their changing social worlds'.[26]

Within the broad study of religion, McGuire's proposed method is not without scholarly relatives. For example, studies of those who are spiritual but not religious similarly demand attention to individuals' understandings of their own spiritual lives, especially as those lives relate to organised religious authority.[27] Studies of the growth of New Age Spiritualities, led by religious scholars such as Paul Heelas, are related to the spiritual emphasis of McGuire's approach.[28] Even philosophy of religion can focus on religion-as-lived, considering, for example, the concept of God expressed through the way people pray.[29]

The focus on lived experiences can also be found within the sociology and psychology of science. Consider, for example, Dina Abbott and Gordon Wilson's book, *The Lived Experience of Climate Change: Knowledge, Science and Public Action*, which

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[26] McGuire, 192.

[27] For examples, see Robert C. Fuller, *Spiritual, but Not Religious: Understanding Unchurched America* (Oxford: Oxford University Press, 2001); Linda A. Mercadante, *Belief without Borders: Inside the Minds of the Spiritual but Not Religious* (Oxford: Oxford University Press, 2014).

[28] For example, see Heelas and Woodhead, *The Spiritual Revolution: Why Religion Is Giving Way to Spirituality*.

[29] See Harriet Harris, 'Prayer', in *The Cambridge Companion to Christian Philosophical Theology*, ed. Charles Taliaferro and Chad Meister, Online ed., Cambridge Companions (Oxford: Oxford University Press, 2010), 216–37, https://doi-org.ezproxy.is.ed.ac.uk/10.1017/CCOL9780521514330.

uses the method of lived experience to approach the complex scientific issue of climate change. Abbott and Wilson believe that by studying lived experiences, insight and knowledge can be gained beyond that which is presented scientifically or academically. The authors explain further: 'This experiential knowledge is *a social process of making* throughout our lives. It evolves through historical processes and is shaped through a variety of social contexts, both general and specific, between groups (Northern, Southern, rich, poor) and individuals (often defined by race, gender).'[30] Lived experiences are *social processes of making* because they are influenced by personal and collective historical narratives, and they in turn influence and make societies. In attempting to offer a definition of lived experience or lived experiential knowledge, Abbot and Wilson claim that the rich, complex narratives are subjective, personal, and internalised; in short, '[l]ived experience is … the reality of our life world'.[31] Whilst one may wonder why lived experiences of a scientific phenomenon, such as climate change, might be worth considering (narrating and generalising), the authors provide three reasons for doing so: first, contributing to an inclusive definition of the phenomenon that considers it as a social phenomenon as well as a physical one; second, understanding the diversity of perspectives and interests involved and why individuals, communities, and countries respond as they do; and three, shaping public policy that is seen as legitimate by citizens.[32] Although Abbott and Wilson are interested in climate change, the same three reasons could be

[30] Dina Abbott and Gordon Wilson, *The Lived Experience of Climate Change: Knowledge, Science and Public Action* (Cham: Springer, 2015), 27–28. Italics added.

[31] Abbott and Wilson, 27–28.

[32] Abbott and Wilson, 48.

used to defend considering other scientific phenomena as social phenomena, as well. For example, and relevant for our study of the *MaddAddam* trilogy, one might consider these reasons as they relate to human genetic engineering that could give rise to creatures such as the Crakers. It is also important to note that, although scientists may not appreciate considering science and/or technology as a social phenomenon, this is a typical methodological approach used by sociologists within science and technology studies (also sometimes known as science and technology in society).[33] Further interest in the lived experience of science can be found, for example, in studies on science curriculum development, such that it is possible to meet the needs of students to connect science with their lives, communities, and experiences.[34] The three aspects of science-and-religion-as-lived that will be examined by drawing together the experiences of multiple characters from the *MaddAddam* trilogy—agency of those who are not influencers of society, the importance of praxis over theory, and embodiment—align with aspects of lived experience revealed by the studies examined above. The method of science-and-religion-as-lived will be further analysed and assessed in Chapter 10.

Characterisation of characters in this chapter will use the narration from the trilogy, but it will not draw on extra-textual material by Atwood. However, as noted above, each process of characterisation is contingent upon each individual reader. It

[33] For an introduction to this field, see Sergio Sismondo, *An Introduction to Science and Technology Studies*, 2nd ed. (Chichester: Wiley-Blackwell, 2010).

[34] For example, see Jeremy F. Price and Katherine L. McNeill, 'Toward a Lived Science Curriculum in Intersecting Figured Worlds: An Exploration of Individual Meanings in Science Education', *Journal of Research in Science Training* 50, no. 5 (2013): 501–29, https://doi.org/10.1002/tea.21084.

must be acknowledged, then, that, as an informed reader, I will inevitably fill characterisation gaps left by the narration of the *MaddAddam* trilogy with supplementary properties drawn from my experience of persons in my life; my experience of other fictional characters from previous literary works read; my academic study of literature, science, religion, and science-and-religion; and my research into Margaret Atwood.

The three characters chosen for this study are Jimmy, Ren, and Toby. The rationale for choosing these three characters is that the texts use their point of view to tell the majority of the story. Only four portions of the trilogy fall outside the points of view of Jimmy, Ren, and Toby: (1) the hymns of the God's Gardeners and (2) Adam One's sermons from *The Year of the Flood*; (3) Toby's stories (an equivalent to Adam One's sermons) told to the Crakers in *MaddAddam*, though early in the book these still rely on Toby as a narrative focaliser; and (4) the final chapters of *MaddAddam*, during which the narrator becomes distanced from Toby such that focalisation is shared between Toby, Blackbeard, and their respective journal entries culminating in the Book. Beyond these portions, the text consists of story narrated from the viewpoints of Jimmy (third-person narration), Ren (first-person narration), and Toby (third-person narration).[35] In seeking to express the lived experiences of Jimmy, Ren, and Toby, I will be referring to their narrated viewpoints, as well as to descriptions of their speech and actions from the viewpoints of other characters, with the specific goal of understanding their lived experiences of the intersection of science and

[35] For a different understanding of narration, in which the Crakers narrate the entire trilogy, see Raschke, 'Margaret Atwood's *MaddAddam* Trilogy: Postmodernism, Apocalypse, and Rapture'.

religion. Drawing together the lived experiences of science-and-religion of the focalising characters reveals three aspects of science-and-religion-as-lived, which will be explored later in the chapter: the complexities of agency for those not working in the relevant fields of religion or science, the importance of practice over belief, and the realities of embodiment.

Jimmy

Jimmy is the narrative focaliser of *Oryx and Crake*. His story is 'refracted through an omniscient narrative voice', such that '[t]he novel takes the form of a third-person indirect interior monologue'.[36] The relationship between Jimmy and the narrator can be described thus:

> [T]he narrator's intimacy and complicity with the protagonist is near-total, often sliding in and out of free indirect discourse almost imperceptibly. This narrator—whom one can only characterize as masculine—is frank, wryly observant, mordantly funny, and unillusioned. As such, 'he' shares with Jimmy a view of man (in this novel, mainly *men*) as a clever chimp, enmeshed in a consumerist economy that trades in instinct, provokes and rewards desire, and denigrates the qualms of any "higher" authority.[37]

This close link between narrator and character allows the lines between the two to be blurred as we consider the character of Jimmy. As with all three books in the trilogy, the narration oscillates between pre-apocalypse and post-apocalypse life. Jimmy has given himself a new name to be used in the post-apocalyptic world with

[36] Howells, 'Margaret Atwood's Dystopian Visions: *The Handmaid's Tale* and *Oryx and Crake*', 171.

[37] Greg Garrard, 'Reading as an Animal: Ecocriticism and Darwinism in Margaret Atwood and Ian McEwan', in *Local Natures, Global Responsibilities: Ecocritical Perspectives on the New English Literatures*, ed. Laurenz Volkmann et al. (Amsterdam: Rodopi, 2010), 239.

the Crakers: Snowman. In the third novel, the Crakers combine the two names as Snowman-the-Jimmy. One critic describes this character thus: 'Jimmy is no revolutionary, and Snowman barely even a survivor'.[38]

Jimmy is the son of two scientists; his father is a genographer, and his mother is a former microbiologist with late-blooming ethical concerns with her and her husband's work ('You're interfering with the building blocks of life. It's immoral. It's … sacrilegious'[39]). Unlike his parents, Jimmy is not very interested in scientific pursuits because he is not a 'numbers person'; he is a 'words person'.[40] Jimmy's only childhood friend is Glenn, who appears in Jimmy's life around the time his mother runs away with corporate-owned intellectual property. Glenn later adopts the gaming name 'Crake', which is the sole name by which Jimmy refers to him. The two grow up together doing homework (Crake is a numbers person and tutors Jimmy), smoking weed, and watching pornography in Crake's uncle's basement. After graduation, Jimmy drifts away from Crake, as the two attend different universities. Jimmy spends much of his university life and early career using his emotional brokenness to lure women into sexual relationships and collecting and preserving obscure, long-forgotten words in a society dominated by science, technology, and capitalist consumerism. Jimmy and Crake are reunited when the latter hires the former to a secret corporate project on immortality. It is there that Jimmy meets Crake's engineered bioforms (the Crakers), as well as falls in love with Crake's employee, Oryx. Jimmy thinks that Oryx is the adult version of a child porn actress he

[38] Garrard, 239.
[39] Atwood, *Oryx and Crake*, 57.
[40] Atwood, 25.

and Crake saw as boys. Jimmy becomes obsessed with her, eventually beginning an affair with her even though Jimmy can tell that Crake loves her and the two are sexually engaged. Both Oryx and Crake ask Jimmy to care for the Crakers if anything ever happens to them.

When the JUVE virus hits, Jimmy is left alone in Paradice dome with the Crakers. Crake returns to Paradice with Oryx, but when Crake slits Oryx's neck, Jimmy shoots him. Jimmy figures out that Crake is behind the JUVE virus, and when much of humanity has died off, Jimmy brings the Crakers out of Paradice to inhabit the world they have inherited. In order to explain to the Crakers the world around them, Jimmy uses slanted truths ('I come from the place of Oryx and Crake'[41]), which turn into metaphors ('Crake and Oryx are clearing away the chaos'[42]) and then myths (such as the story explaining why the animals cannot talk[43]), which finally develop accompanying rituals alongside (such as bringing a fish to Jimmy before he tells a story and beginning each story with a 'picture' of chaos[44]).

In the post-apocalyptic world, Jimmy struggles with his anger at Crake and to keep his sense of humanity. He regularly rehearses a mantra of words and often imagines Oryx with him. After a sustained injury becomes infected, Jimmy's physical health rapidly declines. He discovers/is discovered by a group of humans who have survived (the God's Gardeners and MaddAddamites), who help him recover. Upon waking from a fever-induced slumber, Jimmy inadvertently introduces a new deity to

[41] Atwood, 349.
[42] Atwood, 352.
[43] Atwood, 96.
[44] Atwood, 103.

the Craker pantheon: Fuck. During a collective attempt to save Adam One from the Painballers, Jimmy jumps in front of a bullet intended for Toby and dies shortly thereafter.

We will now consider four aspects of Jimmy's science-and-religion-as-lived, which I have identified through studying his character: humanities versus sciences, science/Crake as God, Jimmy and other deities, and Jimmy's spirituality.

Humanities versus sciences

Jimmy sees himself as a 'words person' living in a world that only values 'numbers people'. He assumes his father looks down upon him for this ('Nothing he could achieve would ever be the right idea, or enough. By OrganInc's math-and-chem-and-applied-bio yardstick he must have seemed dull normal: maybe that was why his father stopped telling him he could do much better if he'd only try, and switched to doling out secretly disappointed praise, as if Jimmy had a brain injury.'[45]), he requires tutoring from Crake to get merely average mathematics scores ('Jimmy on the other hand was a mid-range student, high on his word scores but a poor average in the numbers columns. Even those underwhelming math marks had been achieved with the help of Crake, who'd coached Jimmy weekends, taking time away from his own preparations.'[46]), and he is sent to the lacklustre, liberal arts university, Martha Graham Academy.[47] For much of Jimmy's childhood, he resents the marginalisation that his disinterest in numbers affords him; however, he seems to

[45] Atwood, 50.
[46] Atwood, 173–74.
[47] Atwood, 186–87.

embrace that marginalisation whilst at university. Jimmy's self-identification as a marginalised 'words person', prompts a subtle battle between the humanities and the sciences to be waged by him. Three different battle grounds deserve mention here: Martha Graham Academy, Jimmy's reaction to the Crakers, and his mantra of words.

Although Jimmy is initially begrudging of his academic placement at Martha Graham Academy, he seems to more fully embrace his identity as a words person whilst studying there. Despite his awareness of the lack of value placed upon the Academy in current society, Jimmy 'dug himself in at Martha Graham as if into a trench, and hunkered down for the duration.'[48] The imagery of trench warfare reinforces the sense of battle. During a debate with Crake during their academic years, Jimmy explicitly attempts to defend the humanities turf from Crake's scientific dissection of love: '"Well, what about art?" said Jimmy, a little desperately. He was, after all, a student at the Martha Graham Academy, so he felt some need to defend the art-and-creativity stuff.'[49] When visiting Crake's university, Watson-Crick, Jimmy discovers that '[t]he labs, the peculiar bioforms, the socially spastic scientists—they were too much like his former life, his life as a child [in the Compounds]. Which was the last place he wanted to go back to. Even Martha Graham was preferable'.[50] Although Jimmy is aware that Martha Graham represents a demotion within society, it is a demotion that aligns with a transition from the scientific world to that of the humanities; a demotion that allows him to be more himself. On the same visit to

[48] Atwood, 188.
[49] Atwood, 166.
[50] Atwood, 205.

Watson-Crick, whilst contrasting their academic institutions, Jimmy makes the following observation of the scientific students: they 'tended to forget about cutlery and eat with their hands, and wipe their mouths on their sleeves. Jimmy wasn't picky, but this verged on gross'.[51] Jimmy may have been demoted in society, but in his perspective the numbers people seem to be undergoing devolution. Perhaps the strongest affinity for Martha Graham comes when Jimmy assesses Crake's understanding of immortality, as it applies to the Crakers. Crake describes immortality, thus: 'Immortality … is a concept. If you take "mortality" as being, not death, but the foreknowledge of it and the fear of it, then "immortality" is the absence of such fear. Babies are immortal.' Jimmy responds, 'Sounds like Applied Rhetoric 101.' But when Crake asks for clarification, Jimmy only offers, 'Never mind. Martha Graham stuff.'[52] The important thing here is that Jimmy sees through Crake's word-game precisely because he is a words person who has studied at Martha Graham Academy. Many might think of immortality as the absence of death, not the absence of the fear of death; and it is the job of words people like Jimmy to convince them to agree with the Corporation's view. Jimmy has taken something genuinely useful away from Martha Graham, for he can see through the sham of the consumeristic, capitalist society, and it is in this moment that the value of words (and the humanities) is subtly confessed.[53]

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[51] Atwood, 208–9.

[52] Atwood, 303.

[53] However, it is also important to note the rhetorical stance that Crake is taking, here. He is not taking an understanding of immortality that most scientists would consider. The debate for scientists would likely include a consideration of the scientific definitions of life and death, perhaps at the level of cells or information reproduction. Rather, Crake's concept of immortality becomes an absence of knowledge and fear—this is a psychological explanation, rather than one that operates at the levels of cells (biology), molecules (chemistry), or electrical impulses between neurons (physics).

Jimmy has ethical concerns about the Crakers, but when he is finally introduced to them, viable and healthy specimens already exist and are reproducing. Jimmy does not, therefore, have the opportunity to debate ethics prior to their creation. One of the debates between Jimmy and Crake over the already-developed Crakers, which seems to have taken place once Jimmy joined the Paradice dome project (the episode is narrated as a memory during a chapter narrating the post-apocalyptic plot), is over the caecotrophic feature of the Crakers. However, the only argument against the feature that Jimmy gives is one of aesthetics: 'However, you look at it, he'd said, what it boiled down to was eating your own shit.'[54] But this line of argumentation does nothing to deter Crake: 'Any objections to the process were purely aesthetic. That was the point, Jimmy had said. Crake had said that if so it was a bad one.'[55] In this battle, the sciences simply nullify any offensive argument by the humanities.

The final element of battle between the humanities and the sciences is Jimmy's attempt to retain long-forgotten and seldom-used words. Not only does this act represent Jimmy's attempt to preserve the words, which he values so highly, but reciting these words becomes an act of attempting to sustain his own humanity in a post-apocalyptic world without human companionship. Jimmy not only attempts to defend *the* humanities, but he must defend his own humanity, post-apocalypse.

Crake does not seem to represent the twenty-first century view of natural science, here. For example, Ren explicitly reveals what she understands Crake's project to be (an understanding that Crake's investors probably shared): '*Immortality* was a word he used—Rejoov had been interested in it for decades, something about changing your cells so they'd never die'. See Atwood, *The Year of the Flood*, 305. Italics original.

[54] Atwood, *Oryx and Crake*, 159.

[55] Atwood, 159.

Jimmy's words, which can be found listed in Appendix B, include fun words, such as *bogus* and *awesome*, completely made-up words, such as *tensicity* and *fibracionous*, and (mostly) obscure words, such as *fungible*, *opsimath*, and *subfusc*. However, the preservation of obscure words is not the sole purpose of the list, for the recitation of the list develops a spiritual dimension for him:

> He hates these replays [of memory]. He can't turn them off, he can't change the subject, he can't leave the room. What he needs is more inner discipline, or a mystic syllable he could repeat over and over to tune himself out. What were those things called? Mantras. They'd had that in grade school. Religion of the Week …. 'Hang on to the words,' he tells himself. The odd words, the old words, the rare ones. *Valance. Norn. Serendipity. Pibroch. Lubricious.* When they're gone out of his head, these words, they'll be gone, everywhere, forever. As if they had never been.[56]

Here, Jimmy touches on mental wellbeing, religion and spirituality, and philosophy of language. The consequences of losing these words is both personal and cosmic. The stakes are high, as Jimmy begins to lose his vitality: 'He drinks the warm, bland sausage juice, which—he tells himself—must surely be full of vitamins. Or minerals, at least. Or something. He used to know. What's happening to his mind? He has a vision of the top of his neck, opening up into his head like a bathroom drain. Fragments of words are swirling down it, in a grey liquid he realizes is his dissolving brain.'[57] Jimmy's mantra of words holds spiritual and psychological value for him in his defence against the ultimate scientific battle of the trilogy: bioengineered virus versus humanity. Left alive by Crake to care for his creatures of science, Jimmy sees

[56] Atwood, 68.
[57] Atwood, 149.

himself as the last defender of humanity and of all of its 'monuments to the soul's magnificence'.[58]

Science/Crake as God

Jimmy repeatedly relates science and scientists to God. Remembering his childhood pet rakunk, a genetically recombined species of primarily skunk and raccoon origins, Jimmy reflects on the atmosphere within science labs: 'There'd been a lot of fooling around in those days: create-an-animal was so much fun, said the guys doing it; it made you feel like God.'[59] However, the majority of connections made are more specifically between Crake and God. This results in the deification of Crake by the Crakers, a process instigated by Jimmy's remarks concerning Crake and Oryx as beings who created[60] and love (the present tense is significant, here)[61] the Crakers.

Jimmy (as Snowman) presents himself as a sort of prophet, setting down the laws of the religion of the Crakers: 'He's the only one left who'd known Crake face-to-face, so he can lay claim to the inside track. Above his head flies the invisible banner of Crakedom, of Crakiness, of Crakehood, hallowing all he does.'[62] Jimmy is perhaps creating an analogy between himself and the Moses of the Hebrew Bible: setting down laws and seeing the Israelite deity face-to-face. Because Jimmy knew Crake as a fellow human, he knows that Crake is not a deity, but he is aware of having

[58] This is a reference to the game, Blood and Roses, which Jimmy and Crake regularly played as children. See Atwood, 78–80.

[59] Atwood, 51.

[60] Oryx is the first to tell the Crakers who made them. See Atwood, 311.

[61] For example, see Atwood, 352.

[62] Atwood, 96.

set him up as one for the Crakers: 'Their adulation of Crake enrages Snowman, though this adulation has been his own doing. The Crake they're praising is his fabrication, a fabrication not unmixed with spite: Crake was against the notion of God, or of gods of any kind, and would surely be disgusted by the spectacle of his own gradual deification.'[63] Jimmy also uses such terms as *belief system*,[64] *cosmogony*,[65] *mythology*,[66] and *theology*[67] to characterise the Craker worldview. Furthermore, Jimmy's deifying description of Crake to the Crakers is based on truths: Crake did indeed make them (along with the help of many other scientists), and Crake did indeed organise 'the Great Rearrangement and made the Great Emptiness' by killing humankind.[68] Jimmy also creates an analogy between God and Crake when he refers to the dreams of Crake: '[Jimmy's] immersed in them [Crake's dreams], he'd [*sic*] wading through them, he's stuck in them. Every moment he's lived in the past few months was dreamed first by Crake.'[69] Just as the universe may be thoughts in the mind of a deity,[70] the situation in which Jimmy finds himself first existed in the mind (imagination and dreams) of Crake. As it relates to the Crakers, Jimmy portrays this dreaming as a sacrifice by Crake. In trying to explain the chaos outside the Paradice dome, where humans are still in the process of dying, Jimmy says, 'It's nothing. It's a piece of a bad dream that Crake is dreaming …. He dreams it … so you won't have

[63] Atwood, 103–4.
[64] Atwood, 97.
[65] Atwood, 168.
[66] Atwood, 224.
[67] Atwood, 340.
[68] Atwood, 103.
[69] Atwood, 218.
[70] For a reference to such a belief, see Paul Davies, 'Physics and the Mind of God: The Templeton Prize Address', *First Things: A Monthly Journal of Religion & Public Life*, no. 55 (1995): 32.

to.'[71] Not only does the idea of existing in the mind of a deity find expression here, but so too does an analogy between Crake and Jesus: Crake's self-sacrifice recalls Jesus, as the Son of God in Christianity, who sacrifices his life for God's creation. This self-sacrifice could be analogous to Crake's own death, for although Jimmy shot Crake, Jimmy wonders whether Crake anticipated his own death, regardless.[72]

Jimmy applies the attributes of a deity to Crake and other scientists. Although this is primarily expressed in the deification of Crake by the Crakers, such deification seems to reflect Jimmy's own understanding of his childhood friend, who takes it upon himself to simultaneously wipe out humanity and create his own replacement for it. Then Jimmy is left to fulfil Crake's mandate: to care for Crake's creation.

Jimmy and other deities

Other characters beyond Crake hold spiritual significance for Jimmy, elevating them to metaphorical deity status. The most prominent of these is Oryx, whom Jimmy worships in her life and death. Whilst she is alive, Jimmy's worship of Oryx is that of obsessive love of an elusive woman. Jimmy is obsessed with knowing Oryx's real life-story; however, he never seems to be able to connect the story of her that he knows with what might be considered real-life; a challenge that seems to enhance her deification. After her death, and as Jimmy begins to deteriorate mentally in the post-apocalyptic world, Oryx becomes a spirit, visiting Jimmy:

> Now he can feel Oryx floating towards him through the air, as if on soft feathery wings. She's landing now, settling; she's very close to him, stretched out on her side just a skin's distance away. Miraculously she

[71] Atwood, *Oryx and Crake*, 352.
[72] Atwood, 343.

> can fit onto the platform beside him, although it isn't a large platform. If he had a candle or a flashlight he'd be able to see her, the slender outline of her, a pale glow against the darkness. If he put out his hand he could touch her; but that would make her vanish.[73]

In another instance, her wings are definite: 'He can sense Oryx drifting towards him on her soft feathery wings. Any moment now she'll be with him.'[74] This could perhaps reflect the concept of humans becoming angels after death, including the image of angels as humans with wings. Jimmy's worship of Oryx is reflected in the Crakers' worship of her as a goddess overseeing the animals (Children of Oryx). Jimmy also seems to see Oryx's spirit as an owl—another winged creature, though this time taking the shape of one of her children.[75] The female Crakers seem especially close to Oryx, communing with her: '[Jimmy's] never seen the women do this—this communion with Oryx—although they refer to it frequently. What form does it take? They must perform some kind of prayer or invocation, since they can hardly believe that Oryx appears to them in person. Maybe they go into trances.'[76] Perhaps the Crakers imagine Oryx appearing to them in the same way that Jimmy does, perhaps learning this from him—options Jimmy does not consider.

Jimmy's mother similarly becomes spirit/goddess-like in her absence from his life. His mother is described as a dire, feathered creature: '[H]is mother had attained the status of a mythical being, something that transcended the human, with dark wings and eyes that burned like Justice, and a sword.'[77] Furthermore, the final words

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[73] Atwood, 113.

[74] Atwood, 238.

[75] Atwood, *The Year of the Flood*, 430. This comes from an observation by Ren, who does not know of Jimmy's love of or imaginary visits from Oryx. Ren reacts to his lust-filled calls to an owl that she cannot see or hear.

[76] Atwood, *Oryx and Crake*, 157.

[77] Atwood, 191.

Jimmy hears in his head before a potentially fatal confrontation ('Don't let me down'[78]) are words spoken by both Oryx[79] and Jimmy's mother.[80]

Jimmy also partially deifies himself. This is first done by the choice of 'Snowman' for a name, referring to a mythical creature (Snowman is short for The Abominable Snowman[81]). However, the Crakers make the next step in deifying Jimmy, for after Jimmy went away on a long journey, the Crakers assume that Jimmy went to meet with Crake: 'Now you have been to the sky, you are almost like Crake.'[82] Although Jimmy may never be a Craker deity to the same extent as Oryx and Crake, he is at the very least a prophet, or, with the latest upgrade of 'almost like', he could be akin to an avatar of Crake. However, as the storyteller *par excellence* of the *MaddAddam* trilogy, he seems a more appropriate avatar for a god he mentions early in *Oryx and Crake*: the god of Bullshit.[83] It is perhaps to this god that the weekly fish is actually sacrificed, a sacrifice consumed by Jimmy, but only in his role as storyteller (for Toby and Blackbeard are also expected to eat a fish prior to storytelling).

The final deity associated with Jimmy is introduced in *MaddAddam*. When the Crakers address someone, they use the word 'Oh' prior to that individual's name. However, when Jimmy wakes up from his feverish sleep and remembers killing Crake, he exclaims 'Oh fuck'. The Crakers become confused, and Toby expels the confusion by explaining that Fuck is a friend of Crake and Jimmy, to which Blackbeard interprets,

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[78] Atwood, 374.

[79] Atwood, 322.

[80] Atwood, 258. The phrase could also refer to Crake's final words to Jimmy before Jimmy shot him: 'I'm counting on you.' See Atwood, 329.

[81] Atwood, *Oryx and Crake*, 7–8.

[82] Atwood, 362.

[83] Atwood, 102.

'Fuck is in the sky! … With Crake!'[84] Following the creation (or revelation) of Fuck, an entire story about the adventures of Zeb and Fuck is requested by the Crakers, formally introducing Fuck to their pantheon.[85] In Craker mythology, Fuck becomes a spirit helper to Crake, Jimmy, and Zeb in the same way that Toby considers Pilar her spiritual helper (something we will explore further, below, in our section on Toby).

Jimmy's spirituality

Jimmy does not seem interested in spirituality or religion,[86] unless it can be exploited. For example, he uses his mother's sense of righteousness in the face of what she perceives to be the immorality of science as the basis for school lunchroom skits, in order to gain popularity with his classmates.[87] Later in life, he uses a vague notion of spirituality to manipulate his relationships with women.[88] However, as explored above, spiritual and religious concepts have permeated his psyche nonetheless. His use of words as mantras, explored above, deserves another mention, here, especially as he considers the practice an '*inner* discipline' using a '*mystic* syllable'.[89] These phrases suggest a spiritual significance attached to the act of reciting words. Jimmy also seems to have absorbed some of the self-help spirituality that he studied whilst at Martha Graham:

> *Each one of us must tread the path laid out before him, or her*, says the voice in his head, a man's this time, the style bogus guru, *and each path is unique. It is not the nature of the path itself that should concern*

[84] Atwood, *MaddAddam*, 146–47.
[85] Atwood, 163–65.
[86] For a discussion of the terms *spirituality* and *religion*, especially as they relate to experience, see Chapter 7. *Spirituality* is considered the broader term, of which *religion* is a subset.
[87] Atwood, *Oryx and Crake*, 60.
[88] Atwood, 190.
[89] Atwood, 68. Italics added.

> *the seeker, but the grace and strength and patience with which each and every one of us follows the sometimes challenging* … 'Stuff it,' says Snowman. Some cheap do-it-yourself enlightenment handbook, Nirvana for halfwits. Though he has the nagging feeling that he may well have written this gem himself.[90]

Although Jimmy is not convinced of the genuineness of such spirituality, calling it 'bogus', it comes to his inebriated mind, unbidden, at a moment of considering the concept of being 'old enough'—a concept that could be considered to have spiritual, or at least existential, significance as a transitional or liminal space/time.

Jimmy attributes to a scientifically explainable cause what might be considered his most powerful spiritual experience:

> A caterpillar is letting itself down on a thread, twirling slowly like a rope artist, spiralling towards his chest. It's a luscious, unreal green, like a gumdrop, and covered with tiny bright hairs. Watching it, he feels a sudden, inexplicable surge of tenderness and joy. Unique, he thinks. There will never be another caterpillar just like this one. There will never be another such moment of time, another such conjunction. These things sneak up on him for no reason, these flashes of irrational happiness. It's probably a vitamin deficiency.[91]

This instance of euphoria, experienced alongside awareness of the sublimity of nature, calls forth comments from Jimmy on both cosmic unity and individual uniqueness. Jimmy senses both joy and compassion. This experience is described in the way many would describe a spiritual experience.[92] Jimmy attributes the cause of this experience to a vitamin deficiency, a scientifically-explainable cause, but the reader does not know whether Jimmy is correct in this attribution. The reader is also offered no further explanation as to whether or not Jimmy attributes any spiritual

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[90] Atwood, 23. Italics original.
[91] Atwood, 41.
[92] For discussion of spiritual experiences, see Chapter 7.

significance to this experience. However, at the end of *Oryx and Crake*, Jimmy has another spiritual experience, to which he applies the term *rapture*:

> On the eastern horizon there's a greyish haze, lit now with a rosy, deadly glow. Strange how that colour still seems tender. He gazes at it with rapture; there is no other word for it. *Rapture*. The heart seized, carried away, as if by some large bird of prey. After everything that's happened, how can the world still be so beautiful? Because it is. From the offshore towers come the avian shrieks and cries that sound like nothing human.[93]

Here, Jimmy does not question his use of a word with spiritual or religious connotations. Perhaps he has lost too much of his mind to resist such terminology with scientific defences.

Jimmy's science-and-religion-as-lived

Jimmy seems much more influenced by science than by religion, despite his efforts to defend the humanities. His engagement with science is driven by his parents and close friendship with Crake. However, he remains a layperson when it comes to the scientific. Even though Jimmy becomes a part of the Paradice Project and becomes the sole guardian of the Crakers, he does not possess the scientific knowledge to influence the direction of science and technology in society. Rather, because he is a words person, he is tasked with marketing such scientifically- and technologically-enabled practices and products to the consuming public.

Jimmy's religious awareness seems to be as of a consumeristic product (such as his use of spirituality/religion to manipulate women or his research into self-help spirituality for his dissertation), an attempt to resist the power of science/Crake, or it

[93] Atwood, *Oryx and Crake*, 371. Italics original.

is connected to the stories he tells the Crakers (in which he deifies Crake and Oryx). However, in *using* religion, Jimmy reveals the importance of religion to society: it provides a story through which humans maintain their sense of self and purpose. Jimmy's primary religiously relevant act is to pass religion on to the Crakers through his storytelling. However, considering the relationship between stories, myths, and religion,[94] Jimmy is also providing a religious service to himself as he imparts religiosity to the Crakers, for as Coral Ann Howells writes, 'As his narrative slips strangely between reality, memory, and fantasy, we come to realize that Snowman … is telling stories in a desperate bid to reclaim his own identity, ironizing his present situation, and delighting in language and word play.'[95] The boundaries between myth and religion are blurred in Jimmy's act of storytelling—a blurring that impacts both the Crakers and Jimmy.

In considering science-and-religion-as-lived, Jimmy represents an individual who stands outwith the scientist's laboratory or the theologian's study. Furthermore, Jimmy does not even represent the religious layperson, regularly attending overtly religious services. Jimmy can represent for us, individuals who consume religious and scientific knowledge at least one step removed from the source of such knowledge. Although Jimmy is only one step removed from many scientists, his religious knowledge is of popular religions and spiritualities, gleaned from the public sphere, alone. Jimmy places more trust in the power of science to explain the mechanics of

[94] See Chapter 4 in this thesis. Also see Wright, 'In the Beginning: The Role of Myth in Relating Religion, Brain Science, and Mental Well-Being'.

[95] Howells, 'Margaret Atwood's Dystopian Visions: *The Handmaid's Tale* and *Oryx and Crake*', 172.

the world; however, he is aware of the importance of the humanities to define meaning and identity to individuals. Jimmy uses stories to create this sense of identity and meaning for himself. It is this practice of storytelling (rather than the intricacies of scientific knowledge or methods) that Jimmy passes on to the Crakers.

Ren

Ren's point of view is shared with the reader via first-person narration. As there is no intended distinction between Ren as a character and a narrator, her narrated sections will be treated as direct quotations. However, in characterising Ren, descriptions of her actions and speech provided through the narration of Jimmy's and Toby's points of view will also be included.

Ren is 25 years old at the time of the Waterless Flood.[96] At the age of seven she is taken by her mother, Lucerne, from the HelthWyzer Compound, when Lucerne runs away with her lover, Zeb, who brings the mother and child with him to the God's Gardeners. Ren did not want to be a part of the God's Gardeners; she did not like the living conditions in the make-shift homes, the restrictions on soap and water use, or the plainness of the Gardener clothes. Ren's only friend is Bernice, whom Ren describes as mean and manipulative. However, at the age of ten, Ren becomes friends with a Texan 'pleebrat' named Amanda Payne. Adam One, leader of the God's Gardeners, allows Amanda to live with Ren. With Amanda as her friend, Ren is able to escape the manipulative grasp of pious Bernice, and she grows more comfortable

[96] Ren explains that her age is the same as the year. The Waterless Flood occurs in year 25. See Atwood, *The Year of the Flood*, 68.

with her Gardener life (supplemented by Amanda's non-typical-Gardener lifestyle and personality). Whilst living with the Gardeners, Ren partakes of Gardener festivals, listens to sermons by Adam One, learns hymns, and takes Gardener classes.[97]

By the time Ren turns 14, Lucerne's relationship with Zeb has eroded enough for Lucerne to run away again, this time back to the HelthWyzer Compound, where Ren is unwillingly re-introduced to Compound life. Lucerne lies about the circumstances of their disappearance seven years prior, and she threatens Amanda's security in order to prevent Ren from speaking the truth to her father or other Compound residents. Although Ren did not like the God's Gardeners when she first moved in with them, by the time she is 14, the Gardeners feel like family to her ('I was used to the Gardeners, it was where I belonged now.'[98]). Nothing feels right for Ren back at the Compound, until she meets Jimmy. Ren falls in love with Jimmy. Although Jimmy becomes sexually involved with Ren, he does not express love for her, eventually breaking her heart by having sex with another girl. It is also whilst at HelthWyzer that Ren gets to know Glenn (Crake). Although Ren first sees Glenn whilst among the God's Gardeners when he brings news of a Gardener's illness, she interacts with him regularly at the Compound, as she can be honest with him about her past with the God's Gardeners without feeling awkward.

When Ren graduates, she goes to Martha Graham Academy (two years after Jimmy first goes there). However, when her mother stops financially supporting her, Ren is forced to find a job. She first works at AnooYoo spa with Toby, but then quits

[97] Information about the God's Gardeners has been collated in Appendix C.
[98] Atwood, *The Year of the Flood*, 134.

when she runs into Lucerne there. Ren then finds work as a dancer and trapeze artist at a sex club called Scales and Tails.

During the Waterless Flood, she is locked away in an isolation unit at Scales and Tails due to possible biological contamination from a sexual encounter. She is in a sealed room that the JUVE contagion cannot penetrate. However, she is stuck in the isolation room because she must be released from the outside by code. Ren is able to contact Amanda, who has survived the Waterless Flood, as well, and is able to rescue Ren. However, the two are captured by surviving Painballers, violent criminals who are forced to kill for public entertainment. After escaping, Ren finds Toby. Toby and Ren discover a group of humans, composed of God's Gardeners and MaddAddamites (social activist scientists), and then successfully rescue Amanda. However, the Crakers release the captured Painballers and rape Ren and Amanda.

Ren's main role in the combined camp of the God's Gardeners, MaddAddamites, and Crakers, is to nurture Amanda and Jimmy back to health. She finds out she was impregnated by the Craker males. Ren becomes one of the 'Beloved Three Oryx Mothers',[99] giving birth to a green-eyed human-Craker hybrid, named 'Jimadam' ('Ren says she wanted the name of Jimmy to still be spoken in the world, and alive; and she wanted the same for the name of Adam.'[100]).

In attempting to understand Ren's science-and-religion-as-lived, we will consider four aspects, which arise from a study of her character: Ren's reaction to

[99] Ren, Amanda, and Swift Fox, who give birth to human-Craker hybrids.
[100] Atwood, *MaddAddam*, 380.

the God's Gardeners, Ren's reaction to Crake, Ren's spirituality, and Ren's spiritual guides.

Ren's reaction to the God's Gardeners

Ren spends seven years as a child with the God's Gardeners, who have a developed eco-theology. However, because Ren is a child when living among them, much of her engagement with Gardener lifestyle and theology is reactionary rather than reflective—either as a child or as a retrospective young woman.

Being a child during her stay with the God's Gardeners, she does not know enough Gardener theology with which to be critical.[101] However, neither does she simply absorb or mirror Gardener beliefs, statements, or actions. For example, she is capable of identifying hypocrisy within older Gardeners: 'Burt the Knob explained how to relocate the slugs and snails in the Garden [a common Gardener practice, protecting the plants without killing living beings] by heaving them over the railing into the traffic, where they were supposed to crawl off and find new homes, though I knew they really got squashed.'[102] Ren is also aware of the environmental aspect of the God's Gardeners, calling them a 'greenie cult' to a fellow HelthWyzer student.[103] Her subtle retrospective analysis of the group can be well characterised by her reflections on the Gardener view of death: 'The Gardeners were strict about not killing Life, but on the other hand they said Death was a natural process, which was

[101] The most astute childhood theological reflection Ren records for readers is upon whether or not eggs have souls. See Atwood, *The Year of the Flood*, 134–35.

[102] Atwood, 83.

[103] Atwood, 216.

sort of a contradiction, now that I think about it.'[104] Rather than engage directly with the eco-theology of the God's Gardeners ('Our souls didn't interest us'[105]), she is more influenced by restrictions placed upon her as a child and by the words spoken to her. Powerful, practice-based ways of living that persist with Ren, to varying degrees, are avoiding both meat-eating and writing. Although Ren eventually ignores these restrictions from her former Gardener life, she does so consciously. For example, when readers first encounter Ren, she is writing her name on the Scales and Tails isolation room wall, simultaneously remembering the Gardeners' warnings against writing.[106] However, in the words of pious Bernice when she and Ren meet again at Martha Graham, Ren is extremely 'backslidden' by the time she is 18.[107]

Ren's reaction to Crake (Glenn)

Ren is not a numbers person, nor is she very interested in science or technology (especially since the Gardeners are suspicious of Compound science and technology). Furthermore, any environmental awareness she expresses or acts upon (such as avoiding meat) seems to be connected to Gardener habits (rather than ethos/doctrines) that she absorbed as a child. However, Ren's engagement with science comes in the form of interactions with Glenn (Crake). As a Gardener, when she first meets Glenn, Ren challenges his implication that science can compete with God: '"Illness is a design fault,' said the boy. "It could be corrected." … "So, if you

[104] Atwood, 59.
[105] Atwood, 71.
[106] Atwood, 6.
[107] Atwood, 288.

were making the world, you'd make it better?" I said. Better than God, was what I meant. All of a sudden I was feeling pious, like Bernice. Like a Gardener. "Yes," he said. "As a matter of fact, I would."'[108] Later, at HelthWyzer, Glenn asks Ren a direct neuro-theological question: 'Once he asked me if I thought God was a cluster of neurons, and if so, whether people having that cluster had been passed down by natural selection because it conferred a competitive edge, or whether maybe it was just a spandrel, such as having red hair, which didn't matter one way or another to your survival chances.'[109] If Ren provides an answer to this question, it is not shared with readers. In the narrative, she remarks, 'A lot of the time I felt way out of my depth with him, so I'd say, "What do you think?" He always had an answer to that.'[110] However, unlike Jimmy, Ren does not view Crake or science as god-like, for when she learns that the Crakers have deified Glenn, she merely finds the situation funny: 'They seem to think this Crake is God. Glenn as God, in a black T-shirt—that's pretty funny, considering what he was really like. But I don't laugh.'[111] Ren appears to view science and technology as human products and scientists, such as Glenn, as (merely) humans; none of them compete with or embody the divine.

Ren's spirituality

Ren's spirituality seems to have multiple components and influences. Due to the Gardeners' practical faith, she seems to value codes of conduct, referring to both

[108] Atwood, 147.
[109] Atwood, 228.
[110] Atwood, 228.
[111] Atwood, 411.

her boss, Mordis, and the Gardeners as ethical people.[112] Her spirituality is also materially focused and embodied. For example, Ren invokes the Gardener concept of placing 'Light' around Jimmy when she first becomes sexually involved with him.[113] She also admits that, as a child among the Gardeners, she did not care about her soul.[114] Furthermore, it is the practical lessons of the Gardeners that have remained with Ren ('if there's one thing the Gardeners taught you, it was craft uses for recycled materials'[115]). Other Gardener practices that Ren has continued include meditation[116] and chanting names of dead or presumed dead people and species (similar to Jimmy's mantra of obscure words).[117] After leaving the Gardeners, Ren adds horoscopes to her spiritually-significant influences,[118] and she also imagines a protective force emanating from another person (although she admits that she is 'making that up').[119] However, the most significant sources of spiritual sustenance seem to come from the wise words of others in her life, to which we now turn our attention.

Ren's spiritual guides

Ren often remembers and calls forth pertinent sayings of what I will call *spiritual guides* in her life. Although the sayings may not hold typical spiritual content, they seem to come from Ren's inner conscience, which has been highly influenced by people. Ren does not call such phrases, *sayings*; the people who make such

[112] Atwood, 7, 141.
[113] Atwood, 223.
[114] Atwood, 71.
[115] Atwood, 429.
[116] Atwood, 279, 282, 407.
[117] Atwood, 315.
[118] Atwood, 200–201, 284.
[119] Atwood, 298.

statements, *spiritual guides*; or whence they come, her *conscience*. Rather, these are my own terms used in order to explicate her experience. These statements are identified by attribution, style of insertion in the text (often in italics), and their often dogmatic and/or pedagogic nature. Ren appears to have three groups of spiritual guides: Mordis, Amanda, and the God's Gardeners. The most common Gardeners quoted are Toby, Adam One, and Zeb; sometimes, Ren refers to the group collectively as *the Gardeners* or as *the Adams and Eves* (Gardener leaders).

Ren's very first sentences in the text are sayings of the Gardeners: 'Beware of words. Be careful what you write. Leave no trails.'[120] Although Ren proceeds to explain what these short sentences imply, it is these particular phrases that seem to lodge most firmly in Ren's mind, rising to consciousness long after leaving the Gardeners. Sometimes these sayings provide encouragement in times of despair. For example, when Ren considers suicide, she recalls a saying by the Gardeners: '*Ren, your life is a precious gift, and where there is a gift there is a Giver, and when you've been given a gift you should always say thank you.* So that was some help.'[121] In some instances, Ren explicitly admits to trying to live by the sayings of her spiritual guides. After describing herself singing, Ren states, 'Adam One said music was built into us by God: we could sing like the birds but also like the angels, because singing was a form of praise that came from deeper than just talking, and God could hear us better when we were singing. I try to remember that.'[122] Sometimes the guidance does not take the form of an historical statement made by an individual, but rather of Ren's

[120] Atwood, 6.
[121] Atwood, 227. Italics original.
[122] Atwood, 129.

imagination of that individual's response to a current action or situation. Consider, for example, Ren's imagining of what various Gardeners would think of her profession at Scale and Tails: 'I wonder what they'd think of me—of what I ended up doing for a living. Some of them would be disappointed, like Adam One. Bernice would say I was backslidden and it served me right. Lucerne would say I'm a slut, and I'd say takes one to know one. Pilar would look at me wisely. Shackie and Croze would laugh. Toby would be mad at Scales. What about Zeb? I think he'd try to rescue me because it would be a challenge.'[123] Here we see Ren judging herself based upon the imagined judgments of the Gardeners as her spiritual guides.[124] Sometimes the spiritual guides are sensed as a presence rather than a saying: 'It was the surroundings [of the Gardener building]—though the Gardeners weren't there in their bodies, they were there in Spirit, and it was hard to do anything they'd have disapproved of if they'd seen us doing it when we were ten.'[125] Finally, it is important to note that, sometimes, Ren feels free to alter the sayings of the Gardeners, expressing her own spiritual agency: 'The Adams and the Eves used to say, *We are what we eat*, but I prefer to say, *We are what we wish*.'[126]

Although Amanda and Mordis are not quoted as much as the Gardeners, they remain powerful spiritual guides to Ren. Amanda's sayings include the following examples: 'You can forget who you are if you're alone too much';[127] 'Count your

[123] Atwood, 58.
[124] For another example, see Atwood, 217.
[125] Atwood, 340.
[126] Atwood, 400.
[127] Atwood, 6.

luck';[128] 'you trade what you have to';[129] and 'You don't always have choices'.[130] Amanda's sayings can be much more harsh than Gardener sayings. For example, during the depressive period mentioned above, when Ren considers suicide and remembers the Gardeners' saying about gifts and giving thanks to a Giver, Amanda's voice also comes to her mind: 'Why are you being so weak? Love's never a fair trade. So Jimmy's tired of you, so what, there's guys all over the place like germs, and you can pick them like flowers and toss them away when they're wilted. But you have to act like you're having a spectacular time and every day's a party.'[131] Ren does not comment on this imagined saying of Amanda, thereby failing to indicate whether or not it surpasses the Gardener saying in helpfulness. However, Ren's next actions appear to be a result of following a combination of the guidance given by the two different spiritual guides. Amanda's sayings tend to be more practical, gritty, and context-specific when compared with the sayings of the Gardeners. Ren does not attribute many sayings to Mordis. Perhaps his most spiritually significant saying is, 'Everyone's too sad for everything',[132] and this saying is not expressed by Ren in the same manner as many others I have classified as coming from the spiritual guides, as it is embedded within her life-story narrative, rather than arising to her awareness as if from an inner conscience. However, Mordis deserves mention here due to the sense of direction Ren receives from him: 'I liked having Mordis for a boss because at least it was clear what pleased him. He made me feel safe, maybe because he was

[128] Atwood, 6.
[129] Atwood, 58.
[130] Atwood, 58.
[131] Atwood, 227.
[132] Atwood, 302.

the closest thing to a father I was ever going to get: Zeb had vanished into thin air and my real father hadn't found me very interesting, and in addition he was dead.'[133] Mordis provides Ren with a sense of identity, value, safety, and guidance. Ren feels free to draw from the Gardeners, Amanda, Mordis, and, sometimes, her own sayings in attempts to find spiritual guidance.

Ren's science-and-religion-as-lived

Similar to Jimmy, Ren stands outwith the scientist's laboratory and the theologian's study. However, unlike Jimmy, Ren is a layperson within a religious group. Therefore, Ren stands closer to religion than to science in her understanding of the world. Ren is not anti-science, but she does not comment upon its theories. Furthermore, her time with the technology-suspicious Gardeners and her lack of financial security cause her to remain further removed from the technological advances of society around her. Ren's religion-as-lived represents religious hybridity, as she combines elements of the God's Gardeners, horoscopes, and the direction of various individuals, elevated to the level of spiritual guides, to create meaningful religiosity. Ren is concerned with surviving mundane life, in both pre- and post-apocalyptic settings. Her use (or lack thereof) of products or practices enabled by science and technology rarely involves reflection on that science and technology, but rather upon the warnings given to her as a child within the God's Gardeners. Furthermore, as Ren was a child during her time with the Gardeners, she is not privy to the warfare waged by her 'greenie cult' against the powerful scientific

[133] Atwood, 303.

Corporations. Ren's science-and-religion-as-lived can be characterised as practical, material, and relatively unreflective.

Toby

Toby is the character whose point of view is used through half of *The Year of the Flood* and all of *MaddAddam*. Toby does not tell the story herself in the first person, but she is the focaliser through which the story is narrated. Just as there is a close link between the narrator of *Oryx and Crake* and Jimmy, such that the lines between the two are blurred, there is an analogous close link between the narrator of Toby's sections of *The Year of the Flood* and *MaddAddam* and Toby, as a character. As with analysing Jimmy, we will analyse Toby as if she and the narrator of her point of view are uniform. Near the end of *MaddAddam*, the narration switches to external focalisation, focusing primarily on Toby, then switching to Blackbeard; therefore, these sections will be referred to with greater caution when attempting to understand Toby's lived experience.

Unlike Jimmy and Ren, who were born to parents working in Compounds, Toby is raised within the Pleeblands. Her father spent all of the family's money on medical bills for her mother, who was (unbeknownst to the family) simultaneously poisoned and treated by HelthWyzer in order to exploit the family financially. Toby briefly studies Holistic Healing at Martha Graham Academy. After Toby's mother dies, her father commits suicide. Due to the illegal nature of the suicide and the family debt, Toby burns her identity and disappears from mainstream society. After spending all her saved money and selling her hair and eggs (a process through which

she was accidentally sterilised), Toby finds a job at a pleebmob business called SecretBurgers. Whilst working there, Toby's boss, Blanco, physically and sexually assaults her, repeatedly. It is from this seemingly hopeless situation that Toby is saved by Adam One and the God's Gardeners.

Toby feels very welcomed by the Gardeners; however, she does not feel like a convert to their religion. Toby claims that 'the prayers were tedious, the theology scrambled',[134] and she calls the Gardeners 'fugitives from reality'.[135] But Adam One convinces Toby that she is safest staying with them. Toby slowly becomes a part of the Gardeners: 'Gradually, Toby stopped thinking she should leave the Gardeners. She didn't really believe in their creed, but she no longer disbelieved.'[136] Toby continues to move closer to the inner circle; teaching Holistic Healing with Plant Remedies to Gardener children, studying bees and mycology under Pilar, and eventually, after Pilar's death, taking her place as Eve Six among the Gardener leadership. At this point, Toby learns much more about the God's Gardeners. For example, the Adams and Eves have a laptop, which is forbidden among the Gardeners, and the Adams and Eves secretly meet biweekly ('they sat around a table like any other conclave and hammered out their positions—theological as well as practical—as ruthlessly as medieval monks'[137]). For Toby, the experience of being a Gardener layperson is very different from being an Eve: 'So Toby was not wrapped in some otherworldly sheepfold-like cocoon, as she'd once supposed. Instead she was

[134] Atwood, 46.
[135] Atwood, 47.
[136] Atwood, 97.
[137] Atwood, 189.

walking the edge of a real and potentially explosive power.'[138] The Gardeners prove to be growing in influence, hiding Corporation defectors and infiltrating the Corporations.

After Toby has been with the Gardeners for thirteen years at Edencliff Rooftop Garden, Blanco attacks the Garden in search of her. Although he is unsuccessful, the attack represents a new offensive stance taken against the Gardeners by the CorpSeCorps, labelling the group as terrorist fanatics.[139] Toby is forced to leave Edencliff for her own safety. Her physical appearance is altered, in order to make her 'more invisible',[140] and she takes up her new identity working at AnooYoo Spa-in-the-Park. Whilst there, Toby builds her own Ararat of stored supplies in preparation for the Gardener-prophesied Waterless Flood, and she communicates with Zeb and his Gardener splinter group, MaddAddam, through the Extinctathon platform as Inaccessible Rail. Toby is at AnooYoo Spa when the Waterless Flood hits; because it is the location of her Ararat and isolated within the Park, Toby sends the other employees away and locks herself alone in the building to survive. After finding and healing Ren, Toby and Ren go off to find Amanda, finding and killing Blanco on their way. They find the other surviving Gardeners and MaddAddamites, and then they find Amanda, Jimmy, the two other Painballers, and the Crakers.

Following the rescue of Amanda and Jimmy and the inclusion of the Crakers among the Gardeners and MaddAddamites, Toby begins to settle into life at the Cobb House. Her day-time life consists of treating Jimmy's wounds, counselling Amanda

[138] Atwood, 189.
[139] Atwood, 256.
[140] Atwood, 262.

through her unwanted pregnancy, telling stories to the Crakers, teaching a young Craker (Blackbeard) to read and write, tending to the garden and bees, and protecting the Cobb House from attack. Her night-time life is filled with Zeb. Not only does she become sexually involved with him, but she also listens to his life story. She incorporates the knowledge she learns from Zeb into her stories for the Crakers. In seeking to care for Amanda during the young woman's depression, Toby seeks out spiritual guidance from Pilar, which culminates in a religious experience involving a pigoon sow. Because of Toby's close relationship with Blackbeard, she is able to help form a truce between the surviving humans, the Crakers, and the pigoons. It is due to this truce that the Painballers are finally captured and, after a trial, executed. Toby has taught Blackbeard enough about reading and writing that he eventually takes over as Storyteller and puts the oral stories into writing (the Book). Toby and Zeb marry, and after Zeb's disappearance and assumed death, Toby becomes depressed and eventually leaves the Cobb House with poppy and mushrooms—presumably to commit suicide.

In seeking to articulate Toby's science-and-religion-as-lived, we will look at four aspects of Toby's experience, which arise from a study of her character: her transition from outsider to religious leader, her own spirituality, her religious experiences, and her relation to story.

From outsider to leader

When Toby first joins the God's Gardeners, she feels like she is simply receiving their hospitality, rather than being one of them ('she wasn't really a

convert'[141]). The longer Toby stays with the Gardeners, the more she begins to feel a part of the group, even if she still has not converted ('She didn't really believe in their creed, but she no longer disbelieved'[142]). However, her sense of not being a true Gardener persists—even into the post-apocalyptic world. For example, Toby calls herself a 'sham',[143] not a 'true Gardener',[144] a 'fraud',[145] and an 'outsider'.[146]

Toby's sense of being an outsider, even after becoming an Eve and continuing to practice the Gardener religion after the Waterless Flood has saved the Earth from humanity, seems to stem from her doubts concerning the Gardener beliefs: 'Toby doubted this. She doubted a lot of things. But she kept her doubts to herself, because *doubt* wasn't a word the Gardeners used much.'[147] Indeed, in a sermon by Adam One that Toby heard, the Gardener prophet speaks against doubt that leads to a loss of faith.[148] Thus, when Adam One requests that Toby consider becoming an Eve, she mentions these doubts to him, claiming it would be hypocritical: '"I'm not sure I believe in all of it." An understatement: she believed in very little.'[149] However, Adam One claims that her doubts reassure him of her trustworthiness:

> In some religions, faith precedes action … In ours, action precedes faith. You've been acting as if you believe, dear Toby. *As if*—those two words are very important to us. Continue to live according to them, and belief will follow in time …. We should not expect too much from faith … Human understanding is fallible, and we see through a glass

[141] Atwood, 45.
[142] Atwood, 97.
[143] Atwood, 113.
[144] Atwood, 102.
[145] Atwood, 169.
[146] Atwood, *MaddAddam*, 210.
[147] Atwood, *The Year of the Flood*, 100. Italics original.
[148] Atwood, 234.
[149] Atwood, 168.

> darkly. Any religion is a shadow of God. But the shadows of God are not God.[150]

Although this claim about action preceding faith may not be taught to the lay Gardeners, it provides reassurance for Toby as she steps into her leadership role.

As Eve Six, Toby continues to put her practice, especially with the bees, before her concerns about Gardener theology. Indeed she seems to have little patience with the Council's propensity to 'split such theological hairs' as the purpose of the original Adam's teeth or which fruit Eve ate from the Tree of Knowledge.[151] She also continues to struggle praying.[152] However, her practice seems to fool some, for Zeb later tells Toby that he thought she was a devout Gardener.[153] Based upon Toby's respect for Pilar, as well as upon her later search for spiritual direction from the woman, her dedication to the Eve Six responsibilities is likely due to devotion to Pilar rather than to Adam One and his Gardener theology.

Toby's 'Eveship' is most apparent in the post-apocalyptic setting. Toby continues to track the Gardener feast and festival days when she is alone in AnooYoo Spa following the Flood. When she and Ren set out to rescue Amanda, Toby suggests that they perform a meditation. Then, when they successfully rescue Amanda, find Jimmy, and trap the Painballers, Toby leads a celebration for Saint Julian and All Souls.[154] As *The Year of the Flood* concludes, it appears as if Toby has taken the place of Adam One in preserving and shaping the Gardener religion in the post-apocalyptic

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[150] Atwood, 168–69. Italics original.
[151] Atwood, 240–41.
[152] Atwood, 246.
[153] Atwood, *MaddAddam*, 230.
[154] Atwood, *The Year of the Flood*, 428–31.

world. Despite her doubts about perpetuating the Gardener religion post-apocalypse, because either no one with the skills to read will survive to read her records[155] or the practices will be superfluous since 'the enemies of God's Natural Creation no longer exist' and the natural environment is thriving,[156] Toby chooses to pass on the Gardener religion, hybridised with the Craker mythology, to Blackbeard and the future generations of the human-Craker hybrid society. In creating such a hybrid religion, Toby notably expands upon traditional Gardener religiosity by, for example, speaking to the dead[157] and setting oral beliefs (stories) to writing.[158]

Toby's own spirituality

Although Toby's interaction with religion is mostly shared through reflection on the God's Gardeners, she holds a lived sense of religion prior to joining them. After burying her father, Toby prays over him: 'Toby wasn't much for standard religion: none of her family had been. They'd gone to the local church because … it would have been bad for business not to, … Nevertheless, Toby had whispered a short prayer over the patio stones: *Earth to earth.* Then she'd brushed sand into the cracks.'[159] Toby's prayer does not necessitate a commitment to traditional, organised religion; however, it seems derived from her experience of such religion.

Although Toby does not engage much with the specifics of Gardener theology, she does have moments when she considers theology, of her own accord. For

[155] Atwood, *MaddAddam*, 135.
[156] Atwood, 209.
[157] Atwood, 219.
[158] Atwood, 385–87.
[159] Atwood, *The Year of the Flood*, 27.

example, when Pilar dies beside her, Toby contemplates the nature of spirit: 'Was it her imagination or had the candle flared up at the moment of Pilar's death as if a little surge of air had passed it? Spirit, Adam One would say. An energy that cannot be grasped or measured. Pilar's immeasurable Spirit. Gone. But if Spirit wasn't material in any way, it couldn't influence a candle flame. Could it?'[160] Toby is embarrassed by this theological line of thought ('I'm getting as mushy as the rest of them'[161]); however, her subtle practice of Gardener spirituality brings her to the point of regularly talking to the bees, seeking advice from God ('Supposing You exist'[162]), and, eventually, treating Pilar as a spiritual guide.

Although Toby initially feels like 'a fool'[163] and 'an idiot'[164] when she speaks with the bees, she continues to do so because she has promised Pilar to take her place as Eve Six.[165] Prior to Pilar's death, Toby learns much bee lore. For example, Pilar explains that bees and mushrooms go together: bees are messengers of the dead, and mushrooms are 'the roses in the garden of that unseen world'.[166] Toby's work with bees and mushrooms as Eve Six define a spirituality that becomes Toby's own, leading her to care for bees at the Cobb House and to continue to use mushrooms to obtain religious experiences. When Zeb finds a swarm for Toby in the forest by the Cobb House, Toby asks for permission to offer them a new home:

> Toby feels herself blushing. But she pulls the end of her bedsheet up to cover her head—essential, old Pilar said, or the bees would feel disrespected—and speaks in a whisper to the buzzing furball. "Oh

[160] Atwood, 180.
[161] Atwood, 180.
[162] Atwood, 414.
[163] Atwood, 100.
[164] Atwood, 180.
[165] Atwood, 181.
[166] Atwood, 100.

> Bees," she says. "I send greetings to your Queen. I wish to be her friend, and to prepare a safe home for her, and for you who are her daughters, and to tell you the news every day. May you carry messages from the land of the living to all souls who dwell in the land of the shadows. Please tell me now whether you accept my offer."[167]

Notice, here, that Toby covers her head as if approaching the divine and that she speaks to the bees as messengers between the living and the dead. The important individual for Toby in the land of the dead is Pilar, who has become a spiritual guide for Toby, similar to Ren's spiritual guides and the role Fuck plays in the mythology of the Crakers. After telling the bees to send a message to Pilar, asking for the help of her spirit, Toby imagines seeing Pilar. Toby realises that this sensation does not have a direct neurophysiological cause: 'Now, Toby, she tells herself. Talking pigs [pigoons], communicative dead people [Pilar], and the Underworld in a Styrofoam beer cooler [the home of the bee swarm]. You're not on drugs, you're not even sick. You really have no excuse.'[168] For Toby, bees, mushroom-induced religious experiences, and Pilar, as spiritual guide and protector, have combined to create a powerful, personal spiritual trinity.

Toby and spiritual experience

We have already spent time considering the spiritual experiences of Toby in Chapter 7; however, they are worth briefly exploring again, here, in order to bring Toby's relevant science-and-religion experiences together.

[167] Atwood, *MaddAddam*, 211.
[168] Atwood, 277.

Toby's first spiritual experience occurs when she joins the God's Gardeners and experiences the Edencliff Rooftop Garden for the first time. The full experience is related as follows:

> She gazed around it in wonder: it was so beautiful, with plants and flowers of many kinds she'd never seen before. There were vivid butterflies; from nearby came the vibration of bees. Each petal and leaf was fully alive, shining with awareness of her. Even the air of the Garden was different. She found herself crying with relief and gratitude. It was as if a large, benevolent hand had reached down and picked her up, and was holding her safe. Later, she frequently heard Adam One speak of "being flooded with the Light of God's Creation," and without knowing it yet that was how she felt. "I'm so glad you have made this decision, my dear," said Adam One. But Toby didn't think she'd made any decision at all. Something else had made it for her. Despite everything that happened afterwards, this was a moment she never forgot.[169]

Of import in this quotation are Toby's wonder and immense sense of joy, as powerful affective experiences. There is also a sense of unity with the environment around her, such that beings traditionally considered non-sentient are thought to 'shine with awareness of her'. She expresses an experience of a cosmic Other in the 'large, benevolent hand'—although she avoids the label *god*, this would be the description one might use of a divine Other. Toby also claims that she was 'flooded with the Light of God's Creation', indicating perhaps a sort of nature mysticism. Finally, Toby is convinced that it is not her own agency that has brought her to this point. Toby's language during this experience attributes spiritual significance to it, even though she does not pause to consider any theological implications.

The rest of Toby's spiritual experiences are related to the Gardener use of the psilocybin of mushrooms in order to produce visions. The Gardeners use these 'Vigil

[169] Atwood, *The Year of the Flood*, 43.

materials' and 'out-of-body voyaging substances' during spiritual retreats and for easing people through depression.[170] In one of his sermons, Adam One advocates the use of such substances to aid in the apprehension of the 'wholeness of Being'.[171] However, Toby initially struggles with such spiritual retreats, as she either does not see anything or does not see anything to which she can attach any meaning. For example, the first time Toby requests to do a Vigil, she is unsuccessful: 'She asked to do a Vigil, and spent it on her knees, attempting to mind-meld with a plantful of green peas. The vines, the flowers, the leaves, the pods. So green and soothing. It almost worked.'[172] This is a failed search for unification with an Other, in this case a plant. Even when Toby does see visions, they do not hold significance for her: 'She'd never managed to repeat the moment of illumination she'd felt on her first day with the Gardeners, though she'd tried often enough. She'd gone on the Retreats, she'd done an Isolation Week, she'd performed the Vigils, she'd taken the required mushrooms and elixirs, but no special revelations had come to her. Visions, yes, but none with meaning. Or none with any meaning she could decipher.'[173] However, two of Toby's variably successful religious experiences are recorded within the trilogy, the first occurs in *The Year of the Flood* prior to the Waterless Flood, and the second occurs in *MaddAddam* after the Waterless Flood.

Toby's pre-Waterless Flood experience comes about when Toby is asked to consider becoming an Eve. Although she does not discern any significance from her

[170] Atwood, 169.
[171] Atwood, 235.
[172] Atwood, 99.
[173] Atwood, 168.

vision of a lion-like creature, Adam One and Pilar provide spiritually significant interpretations for the vision on her behalf. Yet Toby merely considers the vision to be 'the effect of a carefully calibrated blend of plant toxins'.[174] Toby's post-Waterless Flood experience is a much more powerful one, and it is one for which she finds her own spiritual significance.

In seeking an answer to Amanda's pregnancy-related depression, Toby decides that she is going to perform a 'short-form Enhanced Meditation'[175] in order to consult Pilar: 'To the soaked dried [*Psilocybe*] mushrooms and the mixed ground-up seeds she'd added a pinch of *muscaria*. Just a pinch: she doesn't want all-out brain fractals, just a low-level shakeup—a crinkling of the window glass that separates the visible world from whatever lies behind it.'[176] After imploring Pilar for guidance, from beside the bush planted above the woman's dead body, a pigoon sow and her farrow appear. Toby stops Zeb from shooting the sow, and despite the danger her heart is 'becalmed'. Facing the sow, Toby's experience is narrated thus: 'Life, life, life, life, life. Full to bursting, this minute. Second. Millisecond. Millennium. Eon.' Toby's focus is interrupted by the singing of Blackbeard, who approaches the sow with outstretched arms. The sow disappears, and Blackbeard exclaims, 'She was here'. 'So, thinks Toby. Go home, take a shower, sober up. You've had your vision.'[177]

Although Toby admits to herself that she is not quite sure what she expected from the experience, she considers the 'vision' a response to her quest to speak with

[174] Atwood, 171.
[175] Atwood, *MaddAddam*, 219.
[176] Atwood, 221.
[177] Atwood, 223.

Pilar. Toby initially sought out Pilar's advice concerning Amanda's depression and her request for an abortion; however, Toby neither sees nor hears Pilar (auditory or visual hallucinations). The sow and farrow that Toby sees are not hallucinations, nor is the singing of Blackbeard an auditory hallucination. Rather, Toby's senses seem to be heightened. Shortly following the event, Toby refers to it as 'a mystical quasi-religious experience': 'I was communicating with my inner Pilar, which was externalized in visible form, connected with the help of a brain chemistry facilitator to the wavelengths of the Universe; a universe in which—rightly understood—there are no coincidences. And just because a sensory impression may be said to be "caused" by an ingested mix of psycho-active substances does not mean it is an illusion.'[178] This is both an immanent (inner Pilar) and transcendent (Universe) interpretation of her experience, simultaneously acknowledging the immanent mediation of a brain on drugs. Toby later decides that the sow was indeed communicating with her, although she is unable to put it into words—preferring to call it 'a current'.[179] When attempting to communicate the message to a friend, Toby explains, 'I got the feeling that she knew I'd shot her husband …. She wasn't pleased …. But more sad than mad, I'd say.'[180] Toby does not make an explicit connection between her initial request of guidance from Pilar and her experience of the sow through altered brain chemistry. However, the experience does alter her treatment of the pigoons, leading the humans to cooperate with them to capture the Painballers. Not only does Toby consider the experience *mystical* and quasi-*religious*, but the experience holds such

[178] Atwood, 227–28.
[179] Atwood, 256, 261–62.
[180] Atwood, 262–63.

power that it alters Toby's worldview and impacts the future collective life of the Cobb House community.

Toby and story

Similar to Jimmy, Toby is a storyteller. Indeed, it is from Toby's point of view that the following comment on story is provided: 'There's the story, then there's the real story, then there's the story of how the story came to be told. Then there's what you leave out of the story. Which is part of the story too.'[181] Not only does she take over Jimmy's role as storyteller for the Crakers, but much of her narration in *MaddAddam* is actually the story of Zeb, which he tells to her each night. The reader receives Zeb's story through Toby as focaliser, and she incorporates what she hears from Zeb into her stories for the Crakers. Although Jimmy is the storyteller *par excellence*—telling stories out of love and reverence for words and in order to maintain his sense of humanity—Toby is an adept storyteller, as well. Toby depends upon Zeb's night-time stories in order to keep herself invigorated in the unstructured post-apocalyptic world.[182]

Toby tells stories to the Crakers because they have requested it—storytelling is an important part of their self-understanding and their budding religion. Toby's most significant contribution to the storytelling practice that Jimmy has started is teaching Blackbeard to read and write. Toby's teaching of and relationship with Blackbeard allows the Crakers to transition from depending upon a human

[181] Atwood, 56.
[182] Atwood, 136.

(considered by them to be nearly divine) storyteller to accepting a Craker storyteller. Whereas Jimmy becomes 'like Crake' in his storytelling relationship with the Crakers, Toby becomes more like a mother, who passes on her knowledge to her children. Story does not hold the same religious meaning for Toby that it does for Jimmy or for the Crakers; however, she is, nonetheless, aware of its power, especially when written. Seeing Blackbeard write his name in the sand and the other Craker children singing (worshipping) in response, Toby thinks: 'Now what have I done? … What can of worms have I opened? They're so quick, these children: they'll pick this up and transmit it to all the others. What comes next? Rules, dogmas, laws? The Testament of Crake? How soon before there are ancient texts they feel they have to obey but have forgotten how to interpret? Have I ruined them?'[183] Despite this concern, Toby continues to teach Blackbeard and helps create the Book for the Crakers. Then Blackbeard teaches reading and writing to the Craker-human hybrid children, possibly fulfilling Toby's fears.

Toby's science-and-religion-as-lived

Similar to Ren, Toby is more religious than she is scientific. However, akin to Jimmy's exposure to Crake and his science, Toby has been exposed to Adam One and his religious ambitions—first through her time as Eve Six, then through her time with Zeb listening to his stories about Adam and the origins of the God's Gardeners.

Toby's religiosity is more practice-based than it is belief-based. There is much in Gardener theology about which she remains sceptical or with which she is in

[183] Atwood, 204.

complete disagreement. Toby seems to value the ecological care that the Gardeners espouse, but she does not concern herself with the theology behind such care—leaving that task to Adam One or other invested Adams and Eves. Despite her theological doubts and reservations, Toby continues to practice Gardener rituals after leaving Edencliff and after the Waterless Flood. Toby is also interested in spiritual experience, hence her choice to contact Pilar after her death, using mushrooms. The personal insight she gains from this experience holds great importance to her understanding of the pigoons, and she is able to influence the relations between humans and pigoons because of the experience. It does not bother Toby that the insight she gained from this experience does not clearly connect with the answers she was initially seeking. Nor is Toby concerned that the experience was facilitated through the intentional alteration of her brain chemistry by mushrooms. Her initial spiritual experience, when joining the Gardeners, is also one which she holds in memory.

Toby feels like an outsider among the Gardeners; however, after the Waterless Flood (when she views herself as the main propagator of the Gardener religion, develops an intimate relationship with Zeb, undergoes her transformative religious experience, and teaches Blackbeard to read and write), Toby seems to become more comfortable with her personal spirituality. This comfort is best displayed in her hybridisation of the beliefs and rituals of the Gardeners and the Crakers.

Although Toby is not a scientist, herself, she interacts with the surviving MaddAddamites, listening to their debates on whether or not the Crakers are human.

Furthermore, she has ample opportunities to interact with the products of science—namely, the pigoons and Crakers. However, Toby does not interact with these species as if they are experimental objects; rather, she interacts with them as she might with any other creature with its own agency. Toby's spiritual experience with the pigoon sow and her mothering of Blackbeard humanise the two species. It is possible that the lessening of the Otherness of pigoons and Crakers is easier for Toby because of her own experience of gender (the sexual Other) and of transforming into a racial Other ('[l]ess angla, more latina'; '[t]he object was to make her more invisible'[184]).

Toby's science-and-religion-as-lived can be characterised as personal and subjective. She grows from self-doubt toward a sense of personal agency. As Toby learns more about the leaders in science (Crake) and religion (Adam One) around her, her awareness does not challenge a simple belief because Toby never had beliefs that she accepted by faith (in Adam One, for example). Rather, her increased awareness seems to embolden her sense of her own agency in creating a worldview suitable for the practicalities of day-to-day life—primarily day-to-day life after the Waterless Flood, as the Crakers and the surviving humans begin to interbreed. Toby seems more concerned with guiding the small Craker-human society toward future harmony: preserving some aspects of human society, as well as freely hybridising that society alongside Craker biology and belief.

Unlike Jimmy, whose concept of science-and-religion-as-lived is often focused on individual survival; and unlike Ren, whose concept of science-and-religion-as-lived is often focused on personal, individual meaning; Toby's concept of science-and-

[184] Atwood, *The Year of the Flood*, 262.

religion-as-lived is personal and subjective, whilst focusing on guiding the future of those around her.

Characters' Lived Experiences of Science-and-Religion

By turning our focus upon the narrative focalisers of the *MaddAddam* trilogy, we have been able to consider the lived experiences of these characters, with special attention given to their experiences of the intersection of science and religion. Although I have provided summaries of science-and-religion-as-lived for the individual experiences of Jimmy, Ren, and Toby, it remains to consider them alongside of each other in order to draw possible conclusions from their collective experiences. I will focus on three issues that come to light when considering science-and-religion-as-lived within the above characters: agency, praxis over theory (practice over belief), and embodiment. As will be discovered in examining these issues, they are interconnected.

Closely observing the lived experiences of Jimmy, Ren, and Toby, the question of agency regularly arises. Jimmy often questions his culpability in the creation of the JUVE virus and the Crakers. Sharon Sutherland and Sarah Swan consider Jimmy to be an *intimate outsider*, 'a member of the society who is in some ways separate from the more powerful elements of the society and not fully convinced of the society's views'.[185] This label fits Jimmy well in his relation to Crake during their childhood and his presence at the Paradice dome. Jimmy is also an intimate outsider in relation to

[185] Sutherland and Swan, 'Margaret Atwood's *Oryx and Crake*: Canadian Post 9/11 Worries', 224.

the Crakers, as an animal-eating monster with two skins. However, following the destruction of humanity and the death of Oryx and Crake, Jimmy cultivates his own agency through telling stories to the Crakers, developing their worldview and mythology. Although he remains an outsider in relation to the Crakers, he discovers his ability to influence their world. Ren is also an intimate outsider in the sense that she is a child when she is a part of the God's Gardeners, such that, whilst she follows aspects of their way of life, she does so without fully comprehending or considering the implications behind their eco-theology. Toby is yet another intimate outsider. She considers herself an outsider of the Gardener religion, even after the Waterless Flood; however, she is also an Eve, and she perpetuates Gardener practices in the post-apocalyptic world. Although Toby does not hold agency in the Gardener origins, primarily as they relate to Adam's reactions against his father and his cooperation with Crake in the development of the JUVE virus, she assumes personal agency in continuing, developing, and disseminating the Gardener religion. Jimmy, Ren, and Toby reveal the tension between not being able to influence institutions or leaders within science and/or religion and discovering the agency to direct one's own personal lived-experience of science-and-religion.

The second issue to consider is praxis over theory, or practice over belief. Because Jimmy, Ren, and Toby are all intimate outsiders, being neither scientists nor theologians/priests, they are already poised to prioritise practice over theory because they are less likely to be privy to the theory behind such practices. Consider Ren, for example, who continues only those Gardener practices or thought patterns that work for her: she continues practicing mediation as a young adult, but she no

longer avoids writing. Toby is a prime example of praxis over theory, with her effort to live as a God's Gardener despite her doubts and her appreciation of her spiritual experience. The concept of praxis over theory applies to Jimmy in his storytelling practice, as it relates to cultivating Craker mythology and religiosity. Unlike Crake's premeditated actions, as they relate to ushering in a post-human world, Jimmy tells his stories in the aid of survival and maintenance of his sense of humanity. Jimmy, Ren, and Toby do not ignore theory, as there are examples of them contemplating the theories behind their practice; however, these moments are relatively rare. The issues of being intimate outsiders and prioritising praxis over theory are also intertwined with the final issue of embodiment.

The focus on embodiment is multi-layered in this particular character study of the *MaddAddam* trilogy. For example, by focusing on the three focalising characters, through which readers see the storyworld, we are reminded that experience itself is embodied. These characters are gendered, of different ages, and with personal histories. Jimmy is a young man, 27 or 28 years of age,[186] who was raised in the Compounds, but is himself a words person, as opposed to the more valued numbers people. He is also madly in love with Oryx. Ren is a young woman, 25 years of age, who was born in the Compounds, raised among the God's Gardeners for seven years, then is returned to the Compounds, and finally returns to the

[186] The number 27 is determined retrospectively, within *The Year of the Flood*, where it is revealed that Jimmy graduates two years before Ren (who is 25 at the time of the Waterless Flood). However, Atwood has stated in interview that Jimmy is 28 at the time of the events narrated in *Oryx and Crake*. This discrepancy can be explained by the narrated events occurring after Jimmy's birthday within the year of the Waterless Flood. See Atwood, *The Year of the Flood*, 229; Mel Gussow, 'Atwood's Dystopian Warning; Hand-Wringer's Tale of Tomorrow', *The New York Times*, 24 June 2003, Online edition, sec. Books, https://www.nytimes.com/2003/06/24/books/atwood-s-dystopian-warning-hand-wringer-s-tale-of-tomorrow.html?pagewanted=I.

Pleeblands for work as a sex club dancer. Toby's age is not revealed in the novel; given her status as an adult in comparison to Ren as a child, Toby might be somewhere in her 40s. She is a woman raised completely in the Pleeblands, who joins the Gardeners as a young adult, after her body has been sexually used and abused by herself and others. These are the three points of view through which readers experience most of the *MaddAddam* trilogy. Embodiment is expressed at the level of plot as well: Jimmy is sexually intimate with many women, and engaged in a sexual affair with Oryx; Ren works in a sex club, and she becomes one of the Beloved Three Oryx Mothers, giving birth to one of the first Craker-human hybrids; Toby is traumatised by her accidental sterilisation and by her sexual abuse at the hands of Blanco, and her healing journey involves sexual intimacy with Zeb and a mothering relationship with Blackbeard. Embodiment relates to science-and-religion in various ways. For example, Ren's pregnancy provides for her a sacred role among the Crakers, but it is a result of human physiology and biology (she was raped by Crakers). Toby's highly influential spiritual experience with the pigoon sow and Pilar is given spiritual significance, but its causal roots in altered brain chemistry under the influence of mushrooms is not denied. Embodiment is also significant for Jimmy when he is faced with the decaying bodies of Oryx and Crake at the end of both *Oryx and Crake* and *MaddAddam*. After actively deifying Oryx and Crake through his stories, which, as argued above, metaphorically reflects his own relationship with the two people, Jimmy is forced to face them, their embodiment presented most strikingly in their physical death and decay. The embodiment of scientific experiments, such as wolvogs, pigoons, and Crakers are daily experiences for survivors of the Waterless

Flood. A final level of embodiment to consider is the importance of storytelling within the trilogy, which requires the physicality of vocal folds, tongue, lips to create oral words and hands, pens/pencils, and paper (or equivalents, such as stick and wet sand) to transmit stories. The same might be said for the singing of various characters or Jimmy's word mantras (when spoken out-loud). Embodiment is essential to understanding science-and-religion-as-lived for the focalising characters of the *MaddAddam* trilogy.

The above three issues—agency, praxis over theory, and embodiment—are issues that characterise science-and-religion-as-lived within the *MaddAddam* trilogy. These issues have been distilled from the lived experiences of Jimmy, Ren, and Toby, with specific attention paid to the lived experiences of science and religion, as well as the intersection of the two. The experiences of these characters represent what it is like to live life where (and when) science and religion interact outside of the theologian's study or the scientist's laboratory. These are instances when science-and-religion is taken outside of the abstract and theoretical settings of the academy or institutions of authority and beyond the lived experiences of scientific or religious experts in order to be studied in the experiential lives of laypeople. Science-and-religion-as-lived within the *MaddAddam* trilogy reveals what it is like to live within an eco-religious cult as a child, who does not understand the theory behind rules, or as a doubter, who nonetheless finds meaning in some of the practices. Science-and-religion-as-lived reveals what it is like to live alongside biogenetically engineered creatures, who develop a mythology that becomes a religion. Science-and-religion-as-lived reveals the challenge of living ethically in a world already filled with powerful

scientific and technological capacities sold to those who can afford them. Science-and-religion-as-lived reveals what it is like to live in a world already infused with science (and technology) and religion, and in which (especially at the popular level) those two disciplines are not neatly compartmentalised into separate departments.

Conclusion

This chapter has provided a second example of a revelatory approach within the science-religion-and-literature field, using the case study of the *MaddAddam* trilogy. The revelatory approach uses particular literary texts and is a literature-in-science-and-religion method because it allows the literary text to stand as a literary text and then assesses whether it has import to the science-and-religion field. Ideally, this import is revealing something new to the field; however, as discovered in the previous chapter, it is possible to the revelatory method to lack revelatory effect. In this chapter, the revelatory approach uses characterisation and examines the lived experience of science-and-religion of the characters Jimmy, Ren, and Toby. This characterisation reveals three aspects of science-and-religion-as-lived: the issue of agency for non-experts, praxis over theory, and embodiment. A study of character within the *MaddAddam* trilogy has more revelatory effect for the science-and-religion field than did a study of themes within the trilogy. However, this revelatory nature, with its suggestion of a science-and-religion-as-lived method within science-and-religion, will be further analysed and assessed in the next chapter, along with the science-and-religion-as-lived method, itself.

This chapter is the final chapter of Part Three, which examined the case study texts, the *MaddAddam* trilogy. Chapter 6 introduced the case study texts, including a summary, a literature review of critical analysis on the trilogy, and tools for critically reading the trilogy, including genre analysis and drawing connections between fictional text and extra-textual reality. Chapter 7 presented examples of an explanatory approach to the trilogy, looking at the science-and-religion topics of bioengineering and spirituality, eco-theology, and religious/spiritual experiences. Chapter 8 presented a revelatory approach to the trilogy, using themes. Chapter 9 presented a revelatory approach to the trilogy, using characterisation. Part Four, to which we now turn, concludes the thesis with a chapter on method within science-religion-and-literature, in which we will specifically consider literature-in-science-and-religion, the revelatory approach, and science-and-religion-as-lived. The chapter will also consider the overall benefits of studying literature to the science-and-religion field, as well as discuss future research directions from this thesis.

Part Four

A Different Way for Science-and-Religion

Chapter 10

Conclusion: Literature-in-Science-and-Religion Method

Introduction

In 2014, Mark Harris claimed that studying 'creative literature' with the methods of literary and textual criticism could potentially be a new mode of discourse for the science-and-religion field, in which analysis of story, narrative, and literary devices took centre stage.[1] I made a similar claim in 2018. At the end of a *Zygon* article on myth as it relates to religion, brain science, and mental well-being, I made initial comments about what I am now calling *the science-religion-and-literature field*. In that article, I defined myth as 'a story or narrative of particular importance to self or society, in a manner that can engage the whole of human experience' and claimed that literature often preserves these stories.[2] I then made three suggestions for furthering academic study of the relation between myth and the science-and-religion field. First, I claimed that we need more science-and-religion scholars analysing myth at the interface of science and religion because the science-and-religion scholar is especially equipped for the interdisciplinary work needed to bring myth into science-and-religion discourse and research. Second, I suggested recognising the storied human mind at the centre of science-and-religion discourse. Third, I claimed that we should recover the power of myth to help people engage with and comprehend

[1] Harris, '"Heretical . . . Dangerous and Potentially Subversive": The Problem of Science and Religion in Aldous Huxley's Brave New World'.

[2] Wright, 'In the Beginning: The Role of Myth in Relating Religion, Brain Science, and Mental Well-Being'.

science-and-religion topics and concepts. There are two types of myth available to us: historical myths and literary myths. Engaging historical myths includes engaging the work of historians who rework and complexify historical understandings of science-and-religion. Engaging literary myths would include engagement as proposed in this thesis, focused as it is upon Atwood's *MaddAddam* trilogy, but it would also include, for example, the use of literature to explore concepts of science-and-religion with those not working within the field.[3] In many ways my concluding remarks from that article, along with Harris's 2014 unpublished conference paper, read as early justifications for the work done in this thesis. This thesis has explored the intersection of narratives, stories, myths, and literary works with science-and-religion. This thesis has been interested in the human at the centre of the science-and-religion discourse, especially through the embodiment of characters. This thesis has worked with literary myths, more than historical myths, and especially with popular literary myths, which can provide insight into popular culture.

This chapter will conclude the thesis through four objectives: synthesise Parts One through Three, consider the various methods presented in the thesis, consider the benefits of studying literature within the larger science-and-religion field, and suggest future directions for research. Parts One through Three include an introduction to science-religion-and-literature, including a general introduction to the thesis and a more specific introduction to the nascent science-religion-and-literature field; examples of using literary theory at the intersection of literature and society, religion, and science; and exposition of the case study trilogy, which involves

[3] Wright, 388.

a general introduction to the *MaddAddam* trilogy, three brief examples of the explanatory approach, and two extended examples of the revelatory approach. The synthesis of these parts will be conducted whilst considering the literature-in-science-and-religion method and benefits of studying literature to the larger science-and-religion field. The methods presented in this thesis include, *lived science-and-religion* (or *science-and-religion-as-lived*), *revelatory approach*, and *literature-in-science-and-religion* (as opposed to *science-and-religion-in-literature*). The unique benefits of studying literature within the science-and-religion field include, allowing the science-and-religion conversation to be conducted beyond the walls of academia, allowing theoretical or abstract concepts to be contextualised (often within a story) and embodied (often within characters), and exposing the human subjective element (especially that of emotions) of issues at the intersection of science and religion.

Method in Science-Religion-and-Literature

In Chapter 2, in which we reviewed the nascent field of science-religion-and-literature, I attempted to systematise the methods of the field. I identified two broad methods for the use of literature within the science-and-religion field: science-and-religion-in-literature and literature-in-science-and-religion. Two smaller categories below those methods include the use of particular texts and the use of literary theory. I explained that it is somewhat artificial to detach the study of particular texts from literary theory; however, the distinction is one of emphasis and made for systematisation purposes. The use of particular texts can be further broken down into four subcategories: authorial, thematic, explanatory, and revelatory. The use of

literary theory can be further broken down into two subcategories: the use of critical theory and the use of the concepts of literary language or story. Authorial, thematic, and explanatory approaches are science-and-religion-in-literature methods; critical theory, literary language or story, and revelatory approaches are literature-in-science-and-religion methods

Parts Two and Three of this thesis portray literature-in-science-and-religion methods. Part Two presents using literary theory at the intersection of literature and society, religion, and science. It allows for theoretical discussions of intersections at the sites of ethics, cognitive science, pedagogy, philosophy, biblical narrative, narrative theology, spirituality and speculative fictions, science as metaphor, posthumanism, the storied human brain, and evocriticism. Part Three is composed of four chapters that work together to portray an in-depth exploration of the revelatory approach, for which I was only able to fine one example within the nascent field of science-religion-and-literature. Part Three contains a chapter that introduces the case study and critical scholarship on it, a chapter with three brief examples of explanatory approaches with the *MaddAddam* trilogy for the purpose of comparison, and two chapters using the revelatory approach with the *MaddAddam* trilogy. The revelatory approach was portrayed through two examples: theme and characterisation. The revelatory approach through characterisation led to a study of characters' lived experiences of science-and-religion, what I have called *science-and-religion-as-lived* or *lived science-and-religion*.

There are three methods that appear in this thesis that remain to be assessed in detail: literature-in-science-and-religion (as opposed to science-and-religion-in-

literature), revelatory approach, and science-and-religion-as-lived (or lived science-and-religion). These methods will now be discussed in-turn.

Literature-in-science-and-religion

In Chapter 1, definitions were formulated for three similar phrases: *science-religion-and-literature*, *science-and-religion-in-literature*, and *literature-in-science-and-religion*. The phrase *science-religion-and-literature* refers to a budding field of research within the larger science-and-religion field. This research was mapped in Chapter 2 according to method of incorporation of literature to a science-and-religion study. The main methodological distinction within science-religion-and-literature was between science-and-religion-in-literature and literature-in-science-and-religion.

The phrases *science-and-religion-in-literature* and *literature-in-science-and-religion* are, according to my use of them, opposing methods within science-religion-and-literature. Science-and-religion-in-literature is a method that uses literature as a medium through which to study science-and-religion topics, concepts, themes, or problems. Methods already found within the larger science-and-religion field continue to be used and applied when studying literary works that contain science-and-religion content. Thus, science-and-religion-in-literature often renders the use of literary works a superfluous element of the science-and-religion study (although this does not mean that the method is devoid of benefit, as we will see below). Literature-in-science-and-religion is a method opposed to science-and-religion-in-literature that allows literature to be studied as literature as a priority, then its

application to the science-and-religion field or discourse is assessed. This method seeks to contribute something new to the science-and-religion field or to its study of particular topics, concepts, or problems. The use of particular literary works or literary theory, therefore, becomes a different method within the larger science-and-religion field, similar to contributions to the field by philosophy, history, or sociology.

Distinguishing between these two methods reveals that the current thesis is not the first attempt to utilise a literature-in-science-and-religion method. The literature-in-science-and-religion method is already found within book-length science-religion-and-literature studies using literary theory. The ability of literary theory to engage religion and science is unsurprising given the interest literary theorists have had in biblical hermeneutics[4] and in the methodological success of the sciences.[5] Scholars capable of engaging literary theory are already likely to be literary scholars of a sort, and they are, therefore, likely going to maintain the equality (if not primacy) of their field and its subject (whether literary theory or particular literary works) alongside that of religion, science, and science-and-religion.

It is the use of particular works within science-religion-and-literature that often portrays a science-and-religion-in-literature method. The examples found for authorial, thematic, and explanatory approaches all portrayed a science-and-religion-in-literature method. The explanatory approach will inherently be science-and-religion-in-literature because it uses literary works to explain a religious, scientific, or

[4] For example, consider mediaeval literary theory arising from the interpretation of sacred scriptures. See Leitch, 'Introduction to Theory and Criticism', 8–10.

[5] For example, consider classificatory nature of structuralism and semiotics or the influence of evolutionary theory on evocriticism. See Leitch, 5, 21–22; Joseph Carroll, 'Teaching Literary Darwinism', *Style* 47, no. 2 (2013): 206–38.

science-and-religion concept, topic, or problem. The authorial approach, as used thus far within the science-religion-and-literature field, is science-and-religion-in-literature because it turns the author into a science-and-religion thinker or scholar. The thematic approach is science-and-religion-in-literature because it begins with a choice of a particular science-and-religion topic and pursues it through different works by different authors. Michael Ruse's study, which asks what literature can tell us about evolution, is a thematic approach that verges on being a revelatory approach. However, because he did not further explore the methodological implications of his study, Ruse's study remains bound to the science-and-religion theme of Darwinism versus Christianity.[6] Only one example was found to represent the revelatory approach in Chapter 2 in the form of an unpublished conference paper. The revelatory approach is inherently literature-in-science-and-religion because it seeks to treat literary works with the tools of literary analysis to potentially reveal something new to the science-and-religion field. Due to the dearth of examples of this approach, and the pursuit of this thesis to reveal the benefits of studying literature within science-and-religion, two examples were portrayed using the *MaddAddam* trilogy in Chapters 8 and 9. The revelatory approach will now be assessed in further detail.

[6] In theory, it would be possible for studies of an author's œuvre or of a theme across many texts to use a literature-in-science-and-religion method; however, such studies have not yet been conducted. Furthermore, such studies would then be classified according to the mapping suggested in this thesis as *revelatory* approaches, as defined in Chapter 2, due to the aim of revelatory approaches to use the tools of literary analysis upon particular literary texts to reveal something new to the science-and-religion field—automatically making such treatments of particular texts part of the wider literature-in-science-and-religion method.

Revelatory approach

The revelatory approach using particular texts is inherently literature-in-science-and-religion. The approach seeks to present something new to the science-and-religion field using particular literary texts. It is most directly contrasted with the explanatory approach that uses literary texts and their elements to merely explain a scientific, religious, or science-and-religion theme, concept, or problem. The revelatory approach can use any element of literary analysis (including study of author) of one or more particular texts in order to reveal something to the science-and-religion field.

Due to the rarity of the revelatory approach in science-religion-and-literature, this thesis provides two examples in Part Three, using the case study of Margaret Atwood's *MaddAddam* trilogy. However, in order to provide context for the presentation of an revelatory approach, I first introduced the case study through a summary of the texts and some of the critical analysis already in existence concerning the texts, then I provided three brief examples of an explanatory approach, with which to contrast the revelatory approach. Thus, Chapter 7 portrays the explanatory use of particular texts within the science-religion-and-literature field. Chapters 8 and 9, on the other hand, attempt to portray a revelatory use of particular texts, using the literary elements of theme and characterisation, aiming to reveal something to the wider science-and-religion field.

The explanatory approaches in Chapter 7 explore the science-and-religion themes of bioengineering and spirituality, eco-theology, and spiritual experiences as they are portrayed and explored through the *MaddAddam* trilogy. These three

general concepts are already discussed within the science-and-religion field, as research recounted within the chapter shows. Chapter 8 explores the themes of mad scientists, immortality, utopias and dystopias, satires, humanity fighting against nature, environmentalism and climate change, and what it means to be human. These themes are shown to arise from within the trilogy, regardless of their exploration within the science-and-religion field. However, one will find many of these topics already being explored within the science-and-religion field, without appeals to literary works. Although the method of Chapter 8 (using a study of theme) is literature-in-science-and-religion and revelatory, it struggles to be strongly revelatory in effect for the larger science-and-religion field. For this reason, a second literary element is used to present a revelatory approach: characterisation. The fact that the revelatory approach can fail to be strongly revelatory (or possibly fail to be revelatory at all) in effect is due to the fact that texts will have differing amounts of scientific and/or religious content. This means that some texts will have nothing to contribute to the science-and-religion field due to lack of scientific or religious content, whilst others will be highly relevant to the science-and-religion field but not contribute something new to the field, as was discovered with the thematic study in Chapter 8.

Chapter 9, therefore, presents a revelatory approach using character analysis. A study of character, especially within novels such as the texts of the *MaddAddam* trilogy, allows for a discussion of the lived experiences of science-and-religion themes, concepts, or problems. This leads to a discussion of science-and-religion-as-lived, or lived science-and-religion, which I suggest at the close of Chapter 9 is

revelatory in effect for the science-and-religion field and is, therefore, the third method to be considered in this thesis.

Science-and-religion-as-lived

The theorists Martha Nussbaum and Wayne Booth were introduced in Chapter 3, which was concerned with the intersection of literature and society. These two theorists are interested in the intersection of literature and ethics, and they both do so by focusing on the ability to consider characters as living Others. For example, I exhibited Nussbaum's view that literature is a vehicle for education and societal betterment by promoting understanding and compassion for the life of another—the life of the character, or the literary Other. In the introduction to his book, *The Company We Keep: An Ethics of Fiction*, Wayne Booth refers to the way readers treat characters in stories (as well as implied authors, who are often considered as other characters of the story) 'as more like *people* than labyrinths, enigmas, or textual puzzles to be deciphered'.[7] This blurring of the line between text and society is common in critical theory, which combines literary and cultural studies. Many critical theorists appeared in Chapters 3 through 5 of this thesis, for the issues concerning such thinkers are wide ranging, including: literature, language, interpretation, genre, style, meaning, tradition, subjectivity, ethnicity, race, gender, sexuality, class, culture, colour, nationality, ideology, institutions, and historical periods.[8] When it comes to science fiction, critical theorists, often those specifically interested in the impacts of

[7] Booth, *The Company We Keep: An Ethics of Fiction*, x. Italics added.
[8] For an introduction to critical theory, see Leitch, 'Introduction to Theory and Criticism'.

technology and scientific knowledge upon society, are found commenting on the genre alongside science fiction authors and genre theorists at scholarly gatherings, such as the renowned J. Lloyd Eaton Conferences.[9] The blurring of the lines between text and society, as represented through these theorists, also allows us to consider methods found in the social sciences, psychology, or anthropology when it comes to the study of literary characters (in texts) and individual humans (in society).

In the last chapter, we considered Meredith McGuire's, *Lived Religion: Faith and Practice in Everyday Life*, which argued that understanding religion requires one to study 'how religion and spirituality are practiced, experienced, and expressed by ordinary people (rather than official spokespersons) in the context of their everyday lives'.[10] We also identified related scholarly approaches within religious studies, philosophy of religion, and sociology and psychology of science. The aspects of lived experience within these studies corresponds with the aspects of science-and-religion-as-lived observed in and examined through characters in the *MaddAddam* trilogy.

McGuire's method is helpful to this thesis because her argument is precisely a methodological one: that if sociologists and anthropologists want to better understand religion, they should be studying religion as it is experienced and lived every day, and that not only by leaders. This means that, although her case studies are most closely related to Christianity, her approach is capable of encompassing all

[9] For a concise collection of essays from the Eaton Conferences, see Gregory Benford et al., eds., *Bridges to Science Fiction and Fantasy: Outstanding Essays from the J. Lloyd Eaton Conferences* (Jefferson, NC: McFarland & Company, 2018).

[10] McGuire, *Lived Religion: Faith and Practice in Everyday Life*, 12.

religions and spiritualities, both for leaders and for laypeople. However, such breadth of applicability runs the risk of diluting its own disciplinary field. Consider McGuire's definition of religion: 'Religion, in this broad sense, consists of how people make sense of their world—the stories out of which they live. Lived religion includes the myriad individual ways people put these stories into practice.'[11] This definition, in turn, influences her definition of lived religion: 'Lived religion is *constituted by the practices* people use to remember, share, enact, adapt, create, and combine the stories out of which they live.'[12] However, McGuire's understanding of religion is not much different from that of a worldview (*Weltanschauung*), the framework through which individuals understand and act in the world. Whilst for many, institutionally-defined religion is the dominating factor of their worldview construction, people can use multiple 'stories' to make sense of their world. To equate meaning-making stories with religion risks making all of life religious. Although I acknowledge the connections between stories and religion, I think it is more accurate to consider stories (I would prefer the term *myth*, as explained in the introduction of this chapter) as the basis of religion, as well as the basis of a wider worldview. Mythologist Joseph Campbell was convinced that 'myth is the secret opening through which the inexhaustible energies of the cosmos pour into the human cultural manifestation'—this includes more than just religion; Campbell also lists philosophies, arts, and science and technology.[13] Critical theorist Stephen Prickett argues that '[w]hat we are concerned with [when considering religion and science] are models of reality—and such models are usually

[11] McGuire, 97–98.
[12] McGuire, 98. Italics original.
[13] Campbell, *The Hero with a Thousand Faces*, 1.

verbal and almost invariably narrative'.[14] Sociologist Christian Smith, in his book *Moral, Believing Animals*, describes 'the pervasiveness and centrality of narratives in the composition, direction, and interpretation of human life'.[15] These scholars would agree with McGuire that stories are fundamental to religion, but they would contest that stories actually reside much deeper within human epistemologies. One might even argue, along with narrative theologians (like those presented in Chapter 4) or philosophical theologian James K. A. Smith, that narrative *is* the ultimate epistemic lens for humanity.[16]

However, it is the above disagreement over McGuire's understanding of religion that makes her method even more valuable to the current chapter. For we are not concerned with understanding merely religion-as-lived for the characters of the *MaddAddam* trilogy but with what we might call *science-and-religion-as-lived* or *lived science-and-religion*. McGuire's arguably weak definition of religion allows her method to be used at the level of worldview, as well.

My interest of science-and-religion-as-lived arises from a study of characters within the *MaddAddam* trilogy, but it is proven robust as a method to be used within science-and-religion by its existence as a method within the fields of religious studies and science and technology studies. Admittedly, one could argue that this approach is not a new contribution of literature to science-and-religion, because this

[14] Prickett, *Narrative, Religion and Science: Fundamentalism versus Irony*, 1700–1999, 71.

[15] Christian Smith, *Moral, Believing Animals: Human Personhood and Culture* (Oxford: Oxford University Press, 2003), 76.

[16] James K. A. Smith, *Thinking in Tongues: Pentecostal Contributions to Christian Philosophy*, vol. 3, Pentecostal Manifestos (Grand Rapids, MI: William B. Eerdmans Publishing Co., 2010), 43–44, 48–85.

contribution could be made through sociological, anthropological, historical, or psychological methods. My response to this critique involves repeating statements by Ursula Le Guin and Margaret Atwood, which we have come across multiple times before in this thesis, in which they claim that the subject of science fiction novels or fiction writing, in general, is ultimately ourselves as human beings. Le Guin contrasts the philosophical, psychological, or sociological study with the novel, thus:

> If the authors wanted to speak clearly why didn't they write an essay, a documentary, a philosophical or sociological or psychological study? Because they are novelists …. [T]hey say what it is they have to say through a character—not a mouthpiece, but a fully realized creation. The character is primary …. The writers' interest is no longer really in the gadget, or the size of the universe, or the laws of robots, or the destiny of social classes, or anything describable in quantitative, or mechanical, or objective terms …. Their subject is the subject, that which cannot be other than subject: ourselves. Human beings.[17]

Addressing aspiring novelists, Atwood presents the purpose of fiction writing, thus:

> I believe that fiction writing is the guardian of the moral and ethical sense of the community. Especially now that organized religion is scattered and in disarray, and politicians have, Lord knows, lost their credibility, fiction is one of the few forms left through which we may examine our society not in its particular but in its typical aspects; through which we can see ourselves and the ways in which we behave towards each other, through which we can see others and judge them and ourselves.[18]

Using these statements from Le Guin and Atwood, one can identify two important differences between science-and-religion-as-lived as a merely sociological method and science-and-religion-as-lived as a literary method. First, is the importance of the character as a 'fully realized creation'. McGuire's research allows her to observe the lives of her subjects and to interview them. However, the fictional novel, with its

[17] Le Guin, 'Science Fiction and Mrs Brown', 92–93.
[18] Atwood, 'An End to Audience?', 346.

focus on character, often allows the reader to observe more of a particular character's life than that to which a sociologist would have access. Readers are often allowed omniscient or first-person access to characters' private actions and inner thoughts. When encountering fully-realised characters we are allowed to encounter a wholistic Other in a way that we are not able to encounter with other, non-textual human beings. Furthermore, sociological research often collates piecemeal data from surveys and interviews in order to present a large picture of humankind or of a particular group of humans. Doing so destroys our experience of individual lives and contextualised experiences. Second, we can use literature, and the characters found therein, if they are fully-developed, to 'see others and judge them and ourselves' in a 'moral and ethical sense'. This extra step of judgement is often not an explicit aspect of sociological, anthropological, historical, and psychological studies.[19] Rather, these methods are often focused on data collection and representation, even if of in-depth case studies of individual humans. Helpful sociological data has come out of the Science and Religion: Exploring the Spectrum project; however, this research still heavily relies upon beliefs rather than practices, and it remains focused on knowledge acquisition based on data collection rather than opportunities to critique/judge or alter current beliefs and practices at the intersection of science and religion.[20]

[19] Subjectivity is unavoidable in any sociological, anthropological, historical, or psychological study, due to judgements made by human scholars conducting such studies; however, making moral and ethical judgments of the individuals constituting the data or of ourselves engaging with the data is typically not a part of these studies.

[20] For information about the Science and Religion: Exploring the Spectrum project, see 'About', Science and Religion: Exploring the Spectrum, accessed 29 April 2019, http://sciencereligionspectrum.org/about-2/. The emphasis on belief over practices is found in the following exemplary phrases: 'public perceptions' and 'what people actually think about their own and

Science-and-religion-as-lived as a method could be conducted within the science-and-religion field without the use of literature; however, it is more robust when it involves the use of literary works presenting fully-realised characters, personas, or narrators. Literary theorist Robert Alter comments upon the ability of literature to provide us with privileged views into human experience:

> A chief reason, after all, that makes imaginative narrative compelling is its capacity to delineate a rich variety of human possibilities with a degree of penetration and sometimes of empathic insight that we are not privileged to enjoy in our extra-literary lives. The psychology of the characters, their cultural experience, their gifts of perception and their blindness, their class background, the assets or disadvantages of their physical constitution, are seen to play out in their relationships, their personal morality, their social and political stances, in a revelatory light that is one of the great joys of reading literature.[21]

This literary form of science-and-religion-as-lived is new to the science-and-religion field, it represents a bridge between the descriptive (such as social science, anthropology, and history) and theoretical (such as theology and philosophy) approaches to science-and-religion, and it is a method that has arisen in this thesis through a revelatory approach in the subfield of science-religion-and-literature.

The three methods explored above—literature-in-science-and-religion, revelatory approach, and lived science-and-religion—suggest that there are benefits to studying literature within the science-and-religion field that would not be brought to the field through another discipline or its methods.

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others' views'. The project team has since moved universities and begun a new research network, the International Research Network for the Study of Science and Belief in Society. See International Research Network for the Study of Science and Belief in Society, 'About', *International Research Network for the Study of Science & Belief in Society*, 2019, https://www.scienceandbeliefinsociety.org/about/.

[21] Alter, 'A Life of Learning: Wandering Among Fields', 98.

Benefits of Studying Literature in Science-and-Religion

Three benefits to studying literature within the science-and-religion field will be explored in this chapter. First, the medium of literature allows the science-and-religion conversation to be carried to and out among popular audiences. Nuanced perspectives and treatments of the intersection of science and religion can be isolated within the spheres of theologians and philosophers of religion and science, leaving only extreme voices such as those of the New Atheists or anti-science religious fundamentalists to dominate public discourse around such science-and-religion topics as the creation of life and the ethics of bioengineering. Literature (as well as other artistic media) can allow for and facilitate nuanced conversations about issues at the intersection of science and religion outside of academic theology and philosophy. Furthermore, science-and-religion scholars can ascertain the nature of the science-and-religion discourse within the popular realm by giving attention to popular culture, including its literature. Second, literature allows theoretical or abstract concepts to be contextualised (usually within a story) and embodied (usually within characters). By contextualising and embodying concepts explored at the intersection of science and religion, a space is created in which to explore the implications or consequences of the subject about which theorising occurs. Literature can allow for a richer exploration of philosophical positions than is possible through reductive theoretical or analytical thought experiments. A fuller picture and greater emotional commitment are enabled through the low-risk space of a story or poem. Third, literature exposes the human subjective element, especially that of emotion,

involved at or in exploring the intersection of science and religion. This exposure is of the subjectivity and emotion of characters, as well as that of implied authors and readers. Through consuming literature, we are enabled to examine our own subjective and emotional responses to the existence or possibilities of science-and-religion concepts or entities within our non-textual world. Ultimately, the study of literature within the science-and-religion field enables profound conversations about philosophy, science, and theology or religion to continue and expand within contemporary society.

Popular engagement with science-and-religion

In the introduction to this chapter, I suggested that we need to recover the power of myth to help laypeople engage and comprehend science-and-religion topics. I think this benefit of engaging and comprehending science-and-religion topics can also be achieved through poetry and other forms of literature, as well as historical myths. However, I would like to suggest that there are actually two aspects to the power of literature when it comes to considering popular engagement with science-and-religion. The first is indeed helping those within the popular realm to engage and comprehend complex and sometimes abstract concepts within science-and-religion. The second is that by studying literature, science-and-religion scholars can understand the science-and-religion discourse as it exists beyond the confines of academia and beyond the more obvious perspectives found within the popular

realm, due to their vocal advocates (consider, for example, New Atheists, such as Richard Dawkins,[22] and anti-science religious fundamentalists, such as Ken Ham[23]).

Although helping those outside of science-and-religion academic discourses is not a contribution of literature to the science-and-religion field, itself, it is still worth discussing as a benefit of studying science-religion-and-literature. Andy Walsh's book, *Faith Across the Multiverse: Parables from Modern Science* (examined in Chapter 2 as an example of an explanatory, science-and-religion-in-literature approach), is an example of a scholar working at the interface of science and religion using literature—specifically science fiction in written, pictorial, and filmic form—to help his intended audience understand the concepts he is describing. Walsh also likely hopes to use popular culture, in this case science fiction, to draw his readers into science-and-religion discourses in which they might otherwise not have been interested. However, literature itself can also be a vehicle with which to bring science-and-religion discourse into the popular realm. As June Deery points out concerning Aldous Huxley, the author wanted to employ popular media in order to introduce ideas to a wide audience,[24] and he viewed literature as 'a heterogeneous and nonspecialized discourse that could serve as a forum or place of negotiation for discourses other than literature'.[25] We can consider Margaret Atwood attempting to do this through her publication of *The Year of the Flood*, due to her comments about

[22] For example, see Richard Dawkins, *The God Delusion* (London: Black Swan, 2007).

[23] For example, see Ken Ham, 'Evolution Is Obsolete (Creation Science)', *Practical Homeschooling* 34 (2000): 48.

[24] Deery, *Aldous Huxley and the Mysticism of Science*, 118.

[25] Deery, 3.

environmentalism needing to become a religion in order to work.[26] It is possible that Atwood published *The Year of the Flood* in order to introduce this idea to popular audiences through the form of a story; one that might also function as a Green Bible for people, despite its fictional form.[27] A successful and well-known author such as Atwood would have a large, sometimes dedicated audience for any science-and-religion ideas found within her texts.[28] Although it is likely that many will consume literature for non-critical entertainment, it is possible that critical discussion can be carried out by readers at the popular level through, for example, book groups. One such book group read *Oryx and Crake* with the intention of discussing the science-and-religion elements within the book.[29] If science-and-religion scholars are interested in disseminating their knowledge beyond fellow experts and beyond the walls of academia, they would do well to consider literature as a fruitful medium for such a task, for literary writers can be more engaging of the general population than scientists, philosophers, or theologians writing nonfiction prose.

The other possibility for considering popular engagement with science-and-religion using literature is the opportunity to learn perspectives on science-and-religion circulating within non-academic culture. Michael Ruse's book, *Darwinism as Religion: What Literature Tells Us About Evolution* (examined in Chapter 2 as an

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[26] Wagner, 'The Conversation: Margaret Atwood', 3.

[27] Canavan, 'Hope, But Not for Us: Ecological Science Fiction and the End of the World in Margaret Atwood's *Oryx and Crake* and *The Year of the Flood*', 157–58. See note 24, where Canavan discusses the possibility that *The Year of the Flood* is intended to be scripture for a new Darwinist ecological religion.

[28] Atwood is especially well-known at this time due to the televised adaptation of her novel, *A Handmaid's Tale.* See Mike Barker et al., *The Handmaid's Tale* (Ontario: Hulu, 2017–2019), https://www.hulu.com/series/the-handmaids-tale-565d8976-9d26-4e63-866c-40f8a137ce5f.

[29] Jennifer Brown, 'On-Line Book Group', Science Missioner, 2019, https://www.sciencemissioner.org.uk/forum/.

example of a thematic, science-and-religion-in-literature approach), provides us with a glimpse into the ability to understand popular engagement with the science-and-religion field through the study of literature. As I stated in Chapter 2, Ruse's data could be used to argue that literature allows us to observe how ideas are disseminated, developed, and propagated in the public sphere—even though Ruse does not take his thesis in this direction. Ruse comments that 'some of the great creative thinkers took up the idea [Darwinism] and worked with it—in ways that were in Darwin's theorizing but that were not developed fully by him or by others around him'[30] and that within the popular realm 'the creative writers started to weigh in' on the feelings of awe and wonder that science can give us.[31] Furthermore, Ruse is able to conclude that 'it was at the popular level that Darwinism struck hardest and had the greatest effect'.[32] Although I have isolated these quotes as literature-in-science-and-religion, as well as potentially revelatory, in approach, these quotes do not represent Ruse's overall argument that Darwinism is a religion in opposition to Christianity. However, his research can be used to begin a valuable discussion about how literature can be used to understand science-and-religion discourse as it exists outside of academia, for Ruse suggests that literary writers can offer different views that are true to a given scientific theory, yet underdeveloped by scientific thinkers (the same could be said of theologians and their theories). Michael Burdett also notes this benefit of studying literature when he claims that '[s]cience fiction really has become the central site where issues related to technology and future are worked

[30] Ruse, *Darwinism as Religion: What Literature Tells Us About Evolution*, 65.
[31] Ruse, 253.
[32] Ruse, 281.

out and argued over'.[33] Science-and-religion scholars will benefit from paying attention to such sites.

Although it might be tempting to simply assume that all science-and-religion dialogue in the public or popular sphere is dominated by the conflict thesis,[34] our study of Atwood's *MaddAddam* trilogy suggests otherwise. Even a science-and-religion-in-literature, explanatory approach to the trilogy portrays a more nuanced engagement between science and religion, with beings engineered to not believe in God developing spirituality and belief in god-like beings, with a fully-developed and successful eco-religion,[35] and with a sustained exploration of drug-induced spiritual experiences. Furthermore, our revelatory, literature-in-science-and-religion approaches portray engagement with the role of story, the influence of economics, and the co-mingling of science and religion within individuals' beliefs and practices. The *MaddAddam* trilogy portrays nuances within science-and-religion discourse as it is engaged beyond the walls of academic theology or philosophy. Although public opinion is gathered by sociologists, a study of literature can also reveal beliefs and practices concerning science-and-religion among populations.

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[33] Burdett, *Eschatology and the Technological Future*, 67.

[34] See Barbour, *Religion and Science: Historical and Contemporary Issues: A Revised and Expanded Edition of* Religion in an Age of Science.

[35] Successful in the sense that their actions led to an event that ultimately preserved the non-human environment by killing most of humanity, but their religious practices also enabled many members of their cult to survive that event.

Theoretical and abstract concepts contextualised and embodied

The second benefit of studying literature in the science-and-religion field is that it allows theoretical or abstract concepts to be contextualised and embodied. Contextualisation can occur within a story, but this could arguably also be done within a poem. Embodiment often occurs within characters. Literature can, therefore, allow for a richer exploration of philosophical positions or the often theoretical and abstract concepts of the science-and-religion field than is possible through reductive thought experiments or abstracted theorising.

Ruse also touches on this benefit in *Darwinism as Religion*, although he does not further explore it. For example, he claims that Henry James's *Portrait of a Lady* sets out to show 'that the foreground can be a great deal more complex than Darwin suggests',[36] and he argues that '[a] novel can present ideas in a way more dramatic, engaging, and hence threatening than countless nonfictional volumes of political philosophy'.[37] According to Ruse, literary writers highlight the complexity of scientific theories and/or the implications of such theories.[38] Although Ruse does not discuss in detail the views of Christian theologians, this sentiment about the complexity of theories could be said of theologians and their theories, as well—especially those discussed as compartmentalised theories within systematic theology, if they are not brought together into a completed synthesis.

We also touched on this benefit in Chapter 3, when we briefly explored the epistemic value of speculative fiction. Johan De Smedt and Helen De Cruz have used

[36] Ruse, *Darwinism as Religion: What Literature Tells Us About Evolution*, 180.
[37] Ruse, 7.
[38] Also see Brooke, 'Science, Religion, and Historical Complexity'.

cognitive science to contrast speculative fiction with philosophical thought experiments. In their article, De Smedt and De Cruz argue that 'speculative fiction allows for a richer exploration of philosophical positions than is possible through ordinary philosophical thought experiments'.[39] When reading speculative fiction,[40] readers are 'fully immersed and drawn into a fictional world' such that they are enabled to 'think along with the fictional characters' mental states', and the fiction is able to 'elicit emotions by providing a safe, risk-free environment'.[41] Fiction is a beneficial tool for exploring the consequences of particular philosophical views because it allows contexts to matter, creates room for open-ended thinking that avoids cognitive closure, and provides a platform from which to assess the consequences of holding a philosophical position.[42] The same could be said for assessing the ethics of scientific techniques and technologies or the ethical implications of certain theologies.

There are examples of this contextualisation and embodiment within our *MaddAddam* trilogy case study. Multiple science-and-religion concepts are explored

[39] De Smedt and De Cruz, 'The Epistemic Value of Speculative Fiction', 59.

[40] One could argue that all fiction is speculative, in the sense that all fiction asks the question: What if? For a defence of science fiction asking this question, see Mike Alsford, *What If? Religious Themes in Science Fiction* (London: Darton, Longman and Todd, 2000), 25. According to Atwood, all fiction is experimental; not only is all fiction speculative in content, but it is also speculative as a creative process. See Atwood, 'Introduction to Ground Works Edited by Christian Bök', 293.

[41] De Smedt and De Cruz, 'The Epistemic Value of Speculative Fiction', 24. Notice that De Smedt and De Cruz disagree with Ruse concerning whether the contextualised and embodied concepts are more or less frightening or threatening than when presented in theoretical or abstract form through non-fictional mediums. De Smedt and De Cruz argue that the environment of a fictional story is safe and risk-free because readers are thinking and feeling through the concept within a textual setting rather than experiencing it in the extra-textual world. Ruse argues that the environment of a novel is more threatening because it is more engaging for the reader than a philosophical tract—both of which are textual settings. The disagreement arises over different mediums being contrasted with a fictional story or novel.

[42] De Smedt and De Cruz, 63–65.

in the *MaddAddam* trilogy, as portrayed in Chapter 7. For example, science-and-religion scholars are interested in relations between God and the human mind, especially as that relation pertains to belief. This concept is explored in the trilogy through Crake's bioengineering of a human-like species, from which he has tried to remove the 'god-spot'. This concept, explored in theory through cognitive science models, neuroscience models based on brain-injury patients, philosophy of mind, and theological anthropology, is not only (speculatively) embodied through the Crakers, but, more importantly, the Crakers are allowed to interact with other elements and beings within their storyworld. It is the contextualisation of theories of the 'god spot' within the realised characters of the Crakers that leads to acknowledgement of the role of story in the development of Craker spirituality. Belief in God is therefore argued through the trilogy to be a more complex issue than that which can be isolated to a single spot in the brain or to an isolated being with a human-like brain.

Another example of contextualisation is that of environmental religion within Atwood's storyworld. Eco-theology is a well-established concept studied within science-and-religion. Most work is done at the level of theology rather than at the level of spirituality or religion-as-lived. There are instances of eco-spiritual theorising being done alongside eco-spiritual practices, but these are often highly interdisciplinary in nature, taking them beyond the science-and-religion field.[43] Atwood's creation of the God's Gardeners allows readers to see what an environmentally-focused religious group could look like and how it might act. Furthermore, it allows readers to see the potential reactions to such a group and the

[43] For example, see Kearns and Keller, 'Preface'.

extent to which such a group might go to secure the safety of the non-human world. Afterall, it is the beliefs and practices of the God's Gardeners that leads to the widespread destruction of humankind. Studying literature, such as the *MaddAddam* trilogy, allows science-and-religion scholars to consider more than the coherency of one's eco-theology. Readers may not choose to enact the beliefs and practices of the God's Gardeners, but they have been exposed to eco-theology as contextualised within the wider storyworld and within the characters found therein.

The examples of contextualisation, as it relates to the Crakers and the God's Gardeners, can also serve as examples of embodiment. The embodiment of science-and-religion concepts within the Crakers is less apparent, since readers are only given a glimpse into Blackbeard's mind through his journaling and storytelling. However, as Chapter 9 showed, embodiment of science-and-religion concepts or embodied interaction with science-and-religion concepts is possible within the *MaddAddam* trilogy through a study of the fully-realised, focalising characters in the novels. As we discovered in Chapter 9, a study of characters' lived experiences of science-and-religion allows us to explore issues of agency, the importance of practice over belief, and the significance of embodiment. The focalising characters express the tension between not being able to influence institutions or leaders within science and/or religion and discovering the agency to direct one's own personal lived experience of science-and-religion. Although sometimes self-reflective, the focalising characters of the trilogy prioritise practice over theory or belief. Finally, we are reminded that experience itself is embodied. Whenever we consider science-and-religion concepts, we should be doing so remembering that we encounter or experience such concepts

as embodied human beings. Although this thesis does not explore these consequences of the embodiment of science-and-religion's theoretical or abstract concepts within the characters of other texts, I suspect other literary works with developed characters will raise similar consequences.[44] It is this reminder of our embodiment that leads us into considering the third benefit of studying literature within science-and-religion.

Human subjective element in science-and-religion

Closely related to the benefit of contextualisation and embodiment is the benefit of exposing the human subjective element, especially that of emotion, involved at the intersection of science and religion. Through consuming and studying literature, we are able to examine our own subjective and emotional responses to the possibilities of science-and-religion concepts or entities within our non-textual world. In this section we will first explore the emotional element, and then the we will explore the wider subjective element.

According to cognitive science and humanities scholar Frederick Luis Aldama, 'Emotion is a defining ingredient in narrative fiction.'[45] David John Baker, a philosopher who writes speculative fiction, claims that it is possible for readers (and writers) to take away a personal moral from fiction 'because the people in the fiction

[44] Even if the characters are philosophers, theologians, scientists, or others able to influence science-and-religion dialogue, the issue of agency would still arise, as humans are not omnipotent and they cannot completely control their environment. However, it is the *MaddAddam* trilogy's use of characters without direct influence upon science-and-religion concepts that will make them more representative of and relatable to those outside the academic science-and-religion field.

[45] Frederick Luis Aldama, 'The Science of Storytelling: Perspectives from Cognitive Science, Neuroscience, and the Humanities', *Projections* 9, no. 1 (2015): 84, https://doi.org/10.3167/proj.2015.090106.

feel the way real humans might feel when confronted with the hypothetical situation'.[46] This also corresponds to Booth's claim that we treat the characters in literature, as well as implied authors, like people.[47] We can, therefore, engage the emotionality of science-and-religion when studying literature by developing a relationship with or studying fictional characters who are themselves emotional beings. This can also be done through the consumption and study of poetry, which can evoke emotion in connection to the science-and-religion dialogue or its concepts and themes.[48] For example, as readers of the *MaddAddam* trilogy, we experience Jimmy's emotional and sexual aversion to the perfect bodies of the female Crakers:

> Every time the women appear, Snowman is astonished all over again. They're every known colour from deepest black to whitest white, they're various heights, but each one of them is admirably proportioned. Each is sound of tooth, smooth of skin. No ripples of fat around their waists, no bulges, no dimpled orange-skin cellulite on their thighs. No body hair, no bushiness. They look like retouched fashion photos, or ads for a high-priced workout program. Maybe this is the reason that these women arouse in Snowman not even the faintest stirrings of lust. It was the thumbprints of human imperfection that used to move him, the flaws in the design: the lopsided smile, the wart next to the navel, the mole, the bruise …. But these new women are neither lopsided nor sad: they're placid, like animated statues. They leave him chilled.[49]

Readers are also able to experience Toby's caution, confusion, and determination as she processes the drug-induced spiritual experience she undergoes in *MaddAddam* and its possible implications, speaking about it with different characters in the novel. These emotions are not communicated explicitly by the narrator; however, the topic

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[46] De Smedt and De Cruz, 'The Epistemic Value of Speculative Fiction', 74.

[47] Booth, *The Company We Keep: An Ethics of Fiction*, x.

[48] I would like to thank Professor Wilson Poon for first pointing out to me the role of poetry in bringing emotion into science-and-religion discourse.

[49] Atwood, *Oryx and Crake*, 100.

continues to come up in the story as Toby continues to work toward an understanding of the experience. These are examples of literary characters enabling readers to experience the emotions that are connected to their experience of concepts explored within the science-and-religion field.

Experiencing emotion is just one aspect of acknowledging the wider human subjective element within science-and-religion. The possibility of studying the human element in and of science-and-religion links with one of the suggestions I made in the introduction to this chapter: to recognise the storied human mind at the centre of the science-and-religion discourse. Some of this work was presented in Chapter 5 in the section on biology and literature. It is important to acknowledge the human who is behind the science-and-religion discourse and whose interests are usually involved in that discourse, despite often being about nature and/or God. Ecocritic Greg Garrard has said, '[T]o focus on nature-oriented literature and ignore the reading, thinking, feeling naked ape at the centre of humanistic enquiry is to narrow fatally the scope of our critique.'[50] This comment stands for studying literature, religion, and science, for all of these enquiries have reading, thinking, feeling 'naked apes' behind them. It is for this reason that approaches that foreground human subjectivity, sometimes through narrative, are important. These approaches remind us that there is always another perspective and that our perspective is limited. Studying literature within science-and-religion can be such an approach.

[50] Garrard, 'Reading as an Animal: Ecocriticism and Darwinism in Margaret Atwood and Ian McEwan', 224.

Human subjectivity is most profoundly represented in the *MaddAddam* trilogy through story and storytelling. Story operates at multiple levels within the trilogy. The *MaddAddam* trilogy is itself an overarching story, within a single storyworld. That story is told primarily through the perspectives of three focalising characters, who share their own stories: Jimmy, Ren, and Toby. The *MaddAddam* trilogy offers little insight beyond the perspectives of these three characters, reminding readers of the limitedness of human subjectivity. Jimmy and Toby, among other characters, have storytelling roles within the storyworld, encouraging this aspect of human language within the Crakers who listen and learn to tell their own stories. Toby reflects explicitly upon the nature of story: 'There's the story, then there's the real story, then there's the story of how the story came to be told. Then there's what you leave out of the story. Which is part of the story too.'[51] In Chapter 8, we explored the role of story in developing Craker mythology, which in-turn develops into Craker spirituality. There is a discussion among characters in *MaddAddam* as to whether or not the Crakers are human. This question is resolved through successful procreation; however, *Oryx and Crake* seems to suggest that the Crakers are human because they share the storytelling tendency of humanity—a tendency which *Oryx and Crake* also appears to suggest is the basis of religion, such that no attempt to remove belief in God or the Transcendent from the brain would be successful unless one were to alter language such that stories could not be told. Analysing *Oryx and Crake*, Stephen Dunning states, 'Sacred narrative cannot be excised without the loss of our humanity, and … we will not recover ourselves until

[51] Atwood, *MaddAddam*, 56.

we recover the stories that tell us who we are.'[52] These stories (or myths) could be religious or scientific, they often bear upon science-and-religion discourse, and they are often preserved for us in our literary works.

The question of who we are is one explored within the science-and-religion field. It is often the question hidden behind theology's study of God and science's study of nature: What is humanity? Why are we here? Where are we going? Humanity is not always the immediate focus of study within the science-and-religion field, but it is behind such study, and humanity's self-interest is often an implicit focus behind studies in science-and-religion. Literature can remind us of that human subjective and emotional element of science-and-religion.

Studying literature in relation to science-and-religion can bring the science-and-religion discourse to popular audiences, as well as help scholars understand science-and-religion perspectives outside of the academic field; it allows theoretical and abstract concepts to be contextualised and embodied; and it exposes the human subjective and emotional element at the intersection of science and religion and the study thereof. These benefits ultimately broaden the dialogue between science and religion concerning the intersection of their fields, as well as allowing science-and-religion discourse to expand within wider, contemporary society.

Summary of Argument

This thesis has sought to bring together a body of research that incorporates literature into a study of science-and-religion. I consider this body of research a

[52] Dunning, 'Margaret Atwood's *Oryx and Crake*: The Terror of the Therapeutic', 87.

nascent subfield within the science-and-religion field, called *science-religion-and-literature*. John Hedley Brooke has said that '[a] field of study is one that can be mapped',[53] and this thesis has been an attempt to map the science-religion-and-literature subfield, as well as an argument for the benefit of research within such a subfield. Chapter 2 provides a review of the scholarship that constitutes this budding field. Special attention has been paid in this thesis to a method, which I am calling *literature-in-science-and-religion*, within the field that allows literary works and literary theory to be most prominent within the study, such that the literary tools of analysis might offer something new to the science-and-religion field. The alternative method, *science-and-religion-in-literature*, allows current science-and-religion concepts, themes, problems, and methods to be most prominent, such that literary works are treated primarily as mediums upon which to explore pre-existing science-and-religion discourse. Literature-in-science-and-religion is portrayed throughout Parts Two and Three of the thesis. Part Two explores the intersection of literary theory (whether critical theory or literary language and story) with society, religion, and science. Part Three is an extended exploration of what I have called the *revelatory* approach. This is done through the choice of a case study, the *MaddAddam* trilogy by Margaret Atwood, and contrasting explanatory and revelatory approaches to the case study. Revelatory approaches to particular texts treat literature as literature, by applying literary critical tools to the text, and then assess whether what is revealed is pertinent to science-and-religion discourse. Chapters 8 and 9 use the literary analysis tools of theme and characterisation. From

[53] Brooke, 'Science and Religion, History of Field', 752.

the analysis of character, the method of *science-and-religion-as-lived* is articulated. Although social science, from which science-and-religion-as-lived is adapted, contributes to the science-and-religion field, it is argued above in this chapter that considering the science-and-religion-as-lived of literary characters allows for greater penetration into human experience than is possible through social science methods of data collection and analysis.[54] The current chapter then argues for three benefits of studying literature for the science-and-religion field: popular engagement with science-and-religion, the contextualisation and embodiment of abstract or theoretical concepts within science-and-religion, and exposing the human subjective element in science-and-religion. Some of these benefits, such as popular engagement with science-and-religion, can be experienced through science-and-religion-in-literature methods, as well as literature-in-science-and-religion methods. This thesis could be considered pushing forward initial work by Mark Harris, on the use of literature within science-and-religion,[55] and Josh Reeves, on the future of method within science-and-religion.[56]

[54] As discussed in Chapter 9, I would not argue for a simple equivalence between literary characters and extra-textual, individual persons. However, the construction of literary characters depends on supplementation by readers from experiences with 'real' persons, thereby creating a flow of 'realism' between literary characters and extra-textual, individual persons. See Lamarque, *Fictional Points of View*.

[55] Harris, '"Heretical . . . Dangerous and Potentially Subversive": The Problem of Science and Religion in Aldous Huxley's Brave New World'.

[56] As discussed in Chapter 1. See Reeves, *Against Methodology in Science and Religion: Recent Debates on Rationality and Theology*.

Further Research Directions

This thesis is intended to be a robust next-step to Harris's suggestion that '[m]ining these works [of creative literature] … allows a whole new mode of discourse potentially to open up to science-religion [science-and-religion] scholarship, where the analysis of story, narrative, and literary devices take centre stage'.[57] Whilst it is hoped that this thesis is indeed a robust next step, it is in no way intended to be the last. I suggest at least three further research directions from this thesis: further testing and development of the mapping/paradigm offered herein for the science-religion-and-literature subfield, further assessment of the future of method within science-and-religion with the study of literature in mind, and increasing evidence for the benefit of studying literature for the science-and-religion field.

Because this thesis is intended to be an initial mapping of the science-religion-and-literature field, further research would include testing the proposed paradigm. The mapping can be tested by applying all the methods with reference to a single case study. The mapping can also be tested by using each approach to multiple case studies. In this instance, the case studies would vary according to approach. For example, apply the authorial approach to multiple authors, the thematic approach to multiple science-and-religion themes, and the concept of story approach to various science-and-religion contexts. Such testing of the paradigm could reinforce it or could necessitate changing it. It is hoped that further science-religion-and-literature studies will be conducted in the future, which can be used in such testing.

[57] Harris, '"Heretical . . . Dangerous and Potentially Subversive": The Problem of Science and Religion in Aldous Huxley's Brave New World'.

Thinking of the future of method within science-and-religion, one might also ask whether the study of literature fits within the future of the field as suggested by Josh Reeves in his book *Against Methodology in Science and Religion*.[58] I would suggest that studying literature is an example of science-and-religion scholars being 'historians of the present',[59] as well as possibly aiding in the reform of the categories of *science* and *religion*.[60] Such a future direction embeds the study of literature into the current issues of the science-and-religion field.[61]

An important further research direction would be to increase evidence for the benefits of studying literature within science-and-religion. This could be done through further use of literature-in-science-and-religion methods within science-religion-and-literature studies, and especially through further studies that use the revelatory approach with particular literary texts. This could also be done by bringing quantitative data alongside the proposed benefits in this thesis, surveying the public about their consumption of literature and their understanding of or engagement with science-and-religion. Further research in this area would hopefully reveal even more benefits of incorporating literature into science-and-religion. If such benefits exist, as this thesis suggests, the subfield of science-religion-and-literature must grow, such that contributions from literature and literary theory hold as much prominence in science-and-religion as contributions from history, philosophy, or sociology.

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[58] See Reeves, *Against Methodology in Science and Religion: Recent Debates on Rationality and Theology*, 122–40.

[59] Reeves, 129.

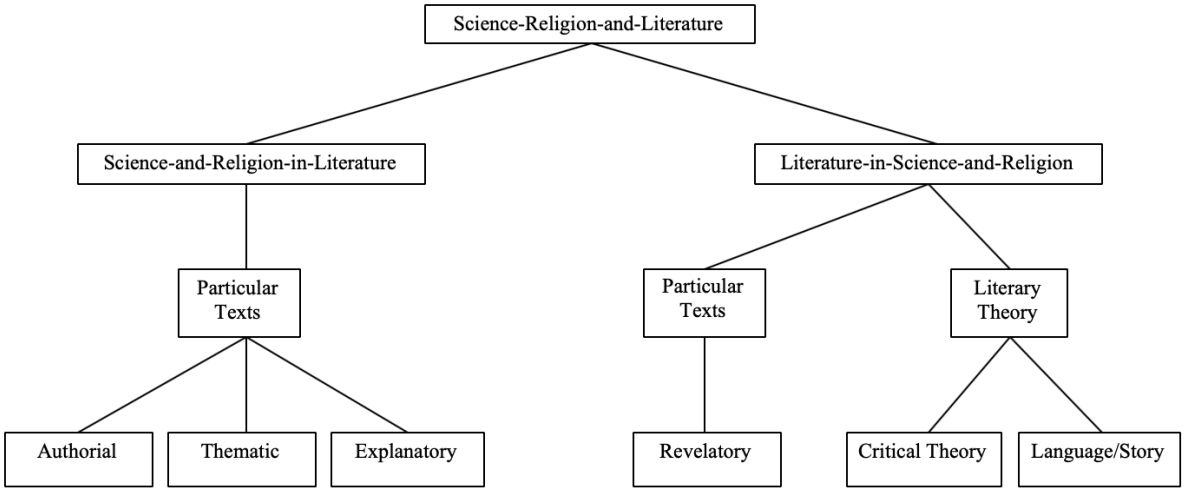
[60] Reeves, 133–36.

[61] Consider, for example, the theme of the 2020 conference of the European Society for the Study of Science and Theology: 'Creative pluralism? Images and models in science and religion'.

Appendices

Appendix A

Diagram of the Science-Religion-and-Literature Field



Appendix B

Jimmy/Snowman's words

Mesozoic
Cork-nut (fun)
Valence
Norn
Serendipity
Pibroch
Lubricious
Bogus (fun)
Awesome (fun)
Sere
Incarnadine
Mephitic
Metronome
Mastitis
Metatarsal
Maudlin
Erudite
Vexation
Scoundrel
Wheelwright
Lodestone
Saturnine
Adamant

Tensicity (made up)
Fibracionous (made up)
Pheromonimal (made up)
Dibble
Aphasia
Breast plough
Enigma
Gat
Knell
Kern
Alack
Berating
Bemoaning
Doldrums
Lovelorn
Leman
Forsaken
Queynt
Unguent
Unctuous
Sumptuous
Voluptuous
Salacious

Lubricious
Delicious
Fungible
Pullulate
Pistic
Cerements
Trull
Prattlement
Opsimath
Concatenation
Subfusc
Grutch
Windlestraw
Laryngeal
Banshee
Woad
Succulent
Morphology
Purblind
Quarto
Frass
Arboreal
Rapture

Appendix C

The God's Gardeners

Description: 'an obscure and then outlawed and then disbanded green religious cult'[1]
Primary location: Edencliff Rooftop Garden
Scripture: The Human Words of God

Year 25 = The Year of the (Waterless) Flood
Year 18 = the year of rupture (when Crake went dark; Gardener schism off into MaddAddam [led by Zeb])

Feast and Saint Days
Creation Day
Podocarp Day
Saint Bashir Alouse Day
The Feast of Adam and All Primates
Saint Yossi Leshem of Barn Owls
Saint Dian Fossey
Saint Shackleton (also later)
Saint Farley of Wolves
The Festival of Arks
Saint Brendan the Voyager
Saint Crick's Day
Saint Mendel's Day
Saint Maria Sibylla Merian of Insect Metamorphosis Day
Saint Allan Sparrow of Clean Air
Saint Euell (Gibbons) of Wild Foods
Mole Day (part of Saint Euell's Week)
Saint E.F. Schumacher
Saint Jane Jacobs
Saint Sigrithur of Gullfoss
Saint Wayne Grady of Vultures
Saint James Lovelock
The Blessed Gautama Buddha
Saint Bridget Stutchbury of Shade Coffee
Saint Linnaeus of Botanical Nomenclature
The Feast of Crocodylidae
Saint Stephen Jay Gould of the Jurassic Shales
Saint Gilberto Silva of Bats
Saint Orlando Garrido of Lizards
April Fish
The Feast of Serpent Wisdom
Saint Jacques Cousteau's Day

[1] Atwood, *MaddAddam*, 135.

Saint E.O. Wilson of Hymenoptera
Saint Aleksander Zawadzki of Galicia
Pollination Day
Saint Sryamani Bhagat of India
Saint Stephen King of the Pureora Forest in New Zealand
Saint Odigha of Nigeria
Saint Dian Fossey, Martyr
Saint Jerome of Lions
Saint Robert Burns of Mice
Saint Christopher Smart of Cats
Saint Farley Mowat of Wolves
The Ikhwan al-Safa and their *Letter of the Animals*
Saint Karen Silkwood
Saint Anil Agarwal
Predator Day
Saint Nganeko Minhinnick of Manukau
Saint Wen Bo Day
Saint Mahatma Gandhi Day
[Saint Henri Fabre
Saint Anna Atkins
Saint Tim Flannery
Saint Ichida-San
Saint David Suzuki
Saint Peter Matthiessen]
Saint Chico Mendes, Martyr
Saint Rachel (Carson) and All Birds
Saint Terry (Fox) and All Wayfarers
Saint Sojourner Truth
Saints Shackleton and Crozier, of Antarctic and Arctic fame
Saint Laurence “Titus” Oates of the Scott Expedition
Saint Julian (of Norwich) and All Souls
~~
The Feast of Cyanophyta
Saint Jane Goodall’s Day
Saint Jan Swammerdam
Saint Zosima
Saint C. R. Ribbands
Saint Bob Hunter and the Feast of Rainbow Warriors
Saint Vandana Shiva of Seeds
Saint Nickolai Vavilov, Martyr
Saint Dian
Saint Francis
Saint Fateh Singh Rathore
The Feast of Cnidaria
The Festival of Internal Parasites

The Festival of Bryophyta-the-Moss
The Feast of Saint Maude Barlow, of Fresh Water
The Festival of Gymnosperms
The Festival of Saint Geyikli Baba of Deer
The Feast of Saint Fiacre of Gardens
The Festival of Quercus and the Feast of Pigoons (latter added by Toby)
The Feast of Artemis, Mistress of the Animals
The Feast of Kannon-the-Oryx, and of Rhizomes-the-Roots (modified by Blackbeard)

Hymns
"The Garden"
"When Adam First"
"Oh Let Me Not be Proud"
"My Body is My Earthly Ark"
"Oh Sing We Now the Holy Weeds"
"We Praise the Tiny Perfect Moles"
"Oh Lord, You Know Our Foolishness"
"God Gave Unto the Animals"
"The Peach or Plum"
"Today We Praise Our Saint Dian"
"The Water-Shrew that Rends Its Prey"
"When God Shall His Bright Wings Unfold"
"The Longest Mile"
"The Earth Forgives"

Sermons
Yr 5, Creation Day, "Of the Creation, and of the Naming of the Animals" (Gen. 1–2)
Yr 10, The Feast of Adam and All Primates, "Of God's Methodology in Creating Man"
Yr 10, The Festival of Arks, "Of the Two Floods and the Two Covenants" (Gen. 8:21; Gen. 9:2; Job 12; Psalm 91)
Yr 12, Saint Euell of Wild Foods, "Of the Gifts of Saint Euell"
Yr 12, Mole Day, "Of the Life Underground"
Yr 14, April Fish, "Of the Foolishness Within All Religions"
Yr 18, The Feast of Serpent Wisdom, "Of the Importance of Instinctive Knowing" (Matt. 10:16; Hebrews 11:1)
Yr 21, Pollination Day, "Of the Trees, and of the Fruits in Their Seasons" (Matt. 7:16–20)
Yr 24, Saint Dian, Martyr, "Of Persecution" (Isaiah 18:6)
Yr 25, Predator Day, "Of God as the Alpha Predator" (Psalm 104:21)
Yr 25, Saint Rachel (Carson) and All Birds, "Of the Gifts of Saint Rachel; and of the Freedom of the Spirit" (Isaiah 34)
Yr 25, Saint Terry and All Wayfarers, "Of the Wandering State"
Yr 25, Saint Julian and All Souls, "Of the Fragility of the Universe"

Teachers

Nuala: little kids; Buds and Blooms Choir; Fabric Recycling
Rebecca: Culinary Arts
Surya: Sewing
Mugi: Mental Arithmetic
Pilar (Eve Six): Bees and Mycology; Historical Mushroom Practices
Toby (Eve Six): Holistic Healing with Plant Remedies
Burt: Wild and Garden Botanicals
Philo: Mediation
Zeb (Adam Seven): Predator-Prey Relationships; Animal Camouflage; Urban Bloodshed Limitation
Katuro: Emergency Medical
Marushka Midwife: Human Reproductive System
Stuart

Bibliography

'A Brief History of the Human Genome Project'. National Human Genome Research Institute, 8 November 2012. https://www.genome.gov/12011239/a-brief-history-of-the-human-genome-project/.

Abbott, Dina, and Gordon Wilson. *The Lived Experience of Climate Change: Knowledge, Science and Public Action*. Cham: Springer, 2015.

Abbott, H. Porter. *The Cambridge Introduction to Narrative*. 2nd ed. Cambridge: Cambridge University Press, 2008.

———. 'Unnarratable Knowledge: The Difficulty of Understanding Evolution by Natural Selection'. In *Narrative Theory and the Cognitive Sciences*, edited by David Herman, 143–62. Stanford, CA: CSLI Publications, 2003.

'About'. Science and Religion: Exploring the Spectrum. Accessed 29 April 2019. http://sciencereligionspectrum.org/about-2/.

Adami, Valentina. 'Between Bioethics and Literature: Representations of (Post-)Human Identities in Margaret Atwood's Oryx and Crake and The Year of the Flood'. *Pólemos* 6, no. 2 (2012): 249–61. https://doi.org/10.1515/pol-2012–0015.

Addison, Sam. 'Alister Hardy: Professor Emeritus of Zoology, Oxford'. The Gifford Lectures: Over 100 Years of Lectures on Natural Theology. Accessed 5 May 2018. https://www.giffordlectures.org/lecturers/alister-hardy.

Aksehir Uygur, Mahinur. 'Utopia and Dystopia Intertwined: The Problem of Ecology in Margaret Atwood's Oryx and Crake, The Year of the Flood and MaddAddam'. *Uluslararasi Sosyal Arastirmalar Dergisi/The Journal of International Social Research* 7, no. 31 (2014): 41–48.

Alber, Jan. 'Impossible Storyworlds--and What to Do with Them'. *StoryWorlds: A Journal of Narrative Studies* 1 (2009): 79–96. https://doi.org/10.1353/stw.0.0008.

Aldama, Frederick Luis. 'The Science of Storytelling: Perspectives from Cognitive Science, Neuroscience, and the Humanities'. *Projections* 9, no. 1 (2015): 80–95. https://doi.org/10.3167/proj.2015.090106.

Aldama, Frederick Luis, and Robert Alter. 'A Long View of the Narrative Studies Professions: An Interview with Robert Alter'. *Narrative* 26, no. 3 (2018): 358–67.

Alexander, Denis R. *Creation or Evolution: Do We Have to Choose?* Grand Rapids, MI: Monarch Books, 2008.

Aloe, Flavio, Florin Amzica, Wayne Hening, Luiz Menna-Barreto, Luciano Ribeiro Pinto Jr., Ricardo Velluti, Robert Vertes, and Cesar Timo-Iaria. 'The Brain Decade in Debate: VII. Neurobiology of Sleep and Dreams'. *Brazilian Journal of Medical and Biological Research* 34, no. 12 (2001): 1509–19.

Alsford, Mike. *What If? Religious Themes in Science Fiction*. London: Darton, Longman and Todd, 2000.

Alter, Robert. 'A Life of Learning: Wandering Among Fields'. *Christianity and Literature* 63, no. 1 (2013): 91–104.

———. *Genesis: Translation and Commentary*. New York: W. W. Norton & Company, 1996.

———. *The Art of Biblical Narrative*. Revised and Updated ed. New York: Basic Books, 2011.

———. *The Hebrew Bible: A Translation with Commentary*. 3 vols. New York: W. W. Norton & Company, 2019.

Appleton, Sarah A. 'Corp(Se)Ocracy: Marketing Death in Margaret Atwood's Oryx and Crake and The Year of the Flood'. *LATCH: A Journal for the Study of the Literary Artifact in Theory, Culture, or History* 4 (2011): 63–73.

Aquili, Eugene G. d', and Andrew B. Newberg. 'The Neuropsychological Basis of Religions, or Why God Won't Go Away'. *Zygon* 33, no. 2 (1998): 187–201.

Atkinson, Elizabeth Grace, Amanda Jane Audesse, Julia Adela Palacios, Dean Michael Bobo, Ashley Elizabeth Webb, Sohini Ramachandran, and Brenna Mariah Henn. 'No Evidence for Recent Selection at FOXP2 Among Diverse Human Populations'. *Cell* 174, no. 6 (2018): 1424–35. https://doi.org/10.1016/j.cell.2018.06.048.

Atwood, Margaret. 'Acknowledgements'. In *Oryx and Crake*, First Anchor Books Edition., 375–76. New York: Random House, 2004.

———. 'Acknowledgements'. In *The Year of the Flood*, First Anchor Books Edition., 433–34. New York: Random House, 2010.

———. 'Acknowledgements'. In *MaddAddam*, First Anchor Books Edition., 393–94. New York: Random House, 2014.

———. 'An End to Audience?' In *Second Words: Selected Critical Prose*, 334–57. Toronto: Anansi, 1982.

———. 'Environmental Helpers'. The Year of the Flood, 2016. http://yearoftheflood.com/environmental-helpers/.

———. 'Essay'. Margaret Atwood. Accessed 29 November 2016. https://web.archive.org/web/20060617224426/http://www.randomhouse.com/features/atwood/essay.html.

———. Faith and Reason: Margaret Atwood and Martin Amis. Interview by Bill Moyers, 28 July 2006. https://vimeo.com/61192027.

———. 'Headlines'. Margaret Atwood: Oryx and Crake. Accessed 29 November 2016. https://web.archive.org/web/20060617225126/http://www.randomhouse.com/features/atwood/oryxandcrake/headlines.html.

———. *In Other Worlds: SF and the Human Imagination*. Paperback Edition. London: Virago Press, 2012.

———. 'Introduction to Ground Works Edited by Christian Bök'. In *Moving Targets: Writing with Intent: 1982–2004*, 293–99. Toronto: Anansi, 2004.

———. *MaddAddam*. First Anchor Books Edition. New York: Random House, 2014.

———. 'Margaret Atwood Meets, and Admires, Some Real-Life "God's Gardeners"'. Church for Vancouver: Working Together, With the Community, 20 January 2014. http://churchforvancouver.ca/margaret-atwood-meets-and-writes-about-some-real-life-gods-gardeners/.

———. ‘Not-for-Profit Organizations’. The Year of the Flood, 2016. http://yearoftheflood.com/not-for-profit-organizations/.

———. ‘Of the Maddness of Mad Scientists: Jonathan Swift’s Grand Academy’. In *In Other Worlds: SF and the Human Imagination*, Paperback Edition., 194–211. London: Virago Press, 2012.

———. *Oryx and Crake*. First Anchor Books Edition. New York: Random House, 2004.

———. *Payback: Debt and the Shadow Side of Wealth*. Toronto: Anansi, 2008.

———. ‘Reading List’. The Year of the Flood, 2016 2014. http://yearoftheflood.com/reading-list/.

———. ‘Related Links’. Margaret Atwood: Oryx and Crake. Accessed 29 November 2016. https://web.archive.org/web/20060614201951/http://www.randomhouse.com/features/atwood/oryxandcrake/links.html.

———. ‘The Handmaid’s Tale and Oryx and Crake “In Context”’. *PMLA* 119, no. 3 (2004): 513–17.

———. *The Year of the Flood*. First Anchor Books Edition. New York: Random House, 2010.

———. ‘Things of Interest’. The Year of the Flood, 2016. http://yearoftheflood.com/things-of-interest/.

———. ‘Writing Oryx and Crake’. In *Moving Targets: Writing with Intent: 1982–2004*, 328–30. Toronto: Anansi, 2004.

———. ‘Writing Utopia’. In *Moving Targets: Writing with Intent: 1982–2004*, 102–11. Toronto: Anansi, 2004.

Aupers, Stef, and Dick Houtman. ‘Beyond the Spiritual Supermarket: The Social and Public Significance of New Age Spirituality’. In *New Age Spirituality: Rethinking Religion*, edited by Steven J. Sutcliffe and Ingvild Sælid Gilhus, 174–96. Durham: Acumen, 2013.

Azizmohammadi, Fatemeh, and Hamedreza Kohzadi. ‘The Impact of Anthropocentrism on Natural Environment from the Perspective of Margaret Atwood’. *Anthropologist* 17, no. 2 (2014): 647–53.

Bahrawi, Nazry. ‘Hope of a Hopeless World: Eco-Teleology in Margaret Atwood’s Oryx and Crake and The Year of the Flood’. *Green Letters* 17, no. 3 (2013): 251–63. https://doi.org/10.1080/14688417.2013.862156.

Baldick, Chris. *The Oxford Dictionary of Literary Terms*. Oxford: Oxford University Press, 2015.

Balthasar, Hans Urs von. *Theo-Logic: Theological Logical Theory*. Translated by Adrian J. Walker. Vol. 1. 3 vols. San Francisco: Ignatius Press, 2000.

Barad, Karen. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham, NC: Duke University Press, 2007.

Barbour, Ian G. *Issues in Science and Religion*. London: SCM Press Ltd, 1966.

———. *Religion and Science: Historical and Contemporary Issues: A Revised and Expanded Edition of* Religion in an Age of Science. London: SCM Press Ltd, 1998.

———. ‘Science and Religion, Models and Relations’. In *Encyclopedia of Science and Religion*, edited by J. Wentzel van Huyssteen, Nancy R. Howell, Niels Henrik

Gregersen, Wesley J. Wildman, Ian Barbour, and Ryan Valentine, 760–66. New York: Macmillan Reference, 2003.

Barker, Mike, Kari Skogland, Diana Reid, Reed Morano, Kate Dennis, Floria Sigismondi, Jeremy Podeswa, et al. *The Handmaid's Tale*. Ontario: Hulu, 2017–2019. https://www.hulu.com/series/the-handmaids-tale-565d8976-9d26-4e63-866c-40f8a137ce5f.

Barrett, Frederick S., Hollis Robbins, David Smooke, Jenine L. Brown, and Roland R. Griffiths. 'Qualitative and Quantitative Features of Music Reported to Support Peak Mystical Experiences during Psychedelic Therapy Sessions'. *Frontiers in Psychology* 8, no. 1238 (2017): 1–12. https://doi.org/10.3389/fpsyg.2017.01238.

Barrett, Justin L., and Roger Trigg. 'Cognitive and Evolutionary Studies of Religion'. In *The Roots of Religion: Exploring the Cognitive Science and Religion*, edited by Justin L. Barrett and Roger Trigg, 1–15. Farnham: Ashgate, 2014.

Baudrillard, Jean. *Simulacra and Simulation*. Translated by Sheila Faria Glaser. Ann Arbor, MI: University of Michigan, 1994.

Beer, Gillian. *Darwin's Plots: Evolutionary Narratives in Darwin, George Eliot and Nineteenth-Century Fiction*. London: Ark Paperbacks, 1983.

Benford, Gregory. 'Effing the Ineffable (1986 Eaton Conference)'. In *Bridges to Science Fiction and Fantasy: Outstanding Essays from the J. Lloyd Eaton Conferences*, edited by Gregory Benford, Gary Westfahl, Howard V. Hendrix, and Joseph D. Miller, 58–69. Jefferson, NC: McFarland & Company, 2018.

Benford, Gregory, Gary Westfahl, Howard V. Hendrix, and Joseph D. Miller, eds. *Bridges to Science Fiction and Fantasy: Outstanding Essays from the J. Lloyd Eaton Conferences*. Jefferson, NC: McFarland & Company, 2018.

Bergthaller, Hannes. 'Housebreaking the Human Animal: Humanism and the Problem of Sustainability in Margaret Atwood's Oryx and Crake'. *English Studies* 91, no. 7 (2010): 728–43. https://doi.org/10.1080/0013838X.2010.518042.

BillMoyers.com Staff. 'Faith and Reason: Margaret Atwood & Martin Amis'. Moyers & Company, 28 July 2006. http://billmoyers.com/content/margaret-atwood-martin-amis-on-faith-reason/.

Boff, Leonardo. *Cry of the Earth, Cry of the Poor*. Translated by Phillip Berryman. Maryknoll, NY: Orbis Books, 1997.

Bone, Jane. 'Environmental Dystopias: Margaret Atwood and the Monstrous Child'. *Discourse: Studies in the Cultural Politics of Education* 37, no. 5 (2016): 627–40. https://doi.org/10.1080/01596306.2015.1075701.

Bookchin, Murray. *The Philosophy of Social Ecology: Essays on Dialectical Naturalism*. 2nd edition, revised. London: Black Rose Books, 1995.

Booker, M. Keith, and Anne-Marie Thomas. *The Science Fiction Handbook*. Malden, Massachusetts: Wiley-Blackwell, 2009.

Booth, Wayne C. *The Company We Keep: An Ethics of Fiction*. Berkeley, California: University of California Press, 1988.

Bouson, J. Brooks. 'A "Joke-Filled Romp" Through End Times: Radical Environmentalism, Deep Ecology, and Human Extinction in Margaret Atwood's Eco-Apocalyptic MaddAddam Trilogy'. *The Journal of*

Commonwealth Literature 51, no. 3 (2016): 341–57. https://doi.org/10.1177/0021989415573558.

———. '"It's Game Over Forever": Atwood's Satiric Vision of a Bioengineered Posthuman Future in Oryx and Crake'. *Journal of Commonwealth Literature* 39, no. 3 (September 2004): 139–56. https://doi.org/10.1177/0021989404047051.

———. '"We're Using Up the Earth. It's Almost Gone": A Return to the Post-Apocalyptic Future in Margaret Atwood's The Year of the Flood'. *The Journal of Commonwealth Literature* 46, no. 1 (Spring 2011): 9–26.

Boyd, Shelley. 'Ustopian Breakfasts: Margaret Atwood's MaddAddam'. *Utopian Studies* 26, no. 1 (2015): 160–82. https://muse.jhu.edu/article/579273.

Brabec de Mori, Bernd. 'About Magical Singing, Sonic Perspectives, Ambient Multinatures, and the Conscious Experience'. *Indiana* 29 (2012): 73–101.

Brantley, Richard. *Emily Dickinson's Rich Conversation: Poetry, Philosophy, Science*. New York: Palgrave Macmillan, 2013.

———. *Experience and Faith: The Late-Romantic Imagination of Emily Dickinson*. New York: Palgrave Macmillan, 2004.

Bratton, Susan Power. 'Ecology and Religion'. In *The Oxford Handbook of Religion and Science*, edited by Philip Clayton, 207–25. Oxford: Oxford University Press, 2008.

Britt, Brian. 'Robert Alter and the Bible as Literature'. *Literature and Theology* 24, no. 1 (2010): 56–72. https://doi.org/10.1093/litthe/frp054.

Brooke, John Hedley. 'Science and Religion, History of Field'. In *Encyclopedia of Science and Religion*, edited by J. Wentzel van Huyssteen, Nancy R. Howell, Niels Henrik Gregersen, Wesley J. Wildman, Ian Barbour, and Ryan Valentine, 748–55. New York: Macmillan Reference, 2003.

———. *Science and Religion: Some Historical Perspectives*. Canto Classics edition. Cambridge: Cambridge University Press, 2014.

———. 'Science, Religion, and Historical Complexity'. *Historically Speaking* 8, no. 5 (2007): 10–13. https://doi.org/10.1353/hsp.2007.0028.

Brown, Jennifer. 'On-Line Book Group'. Science Missioner, 2019. https://www.sciencemissioner.org.uk/forum/.

Bruce, Steve. *God Is Dead: Secularization in the West*. Oxford: Blackwell Publishing, 2002.

Bryant, John, and Peter Turnpenny. 'Genetics and Genetic Modification of Humans: Principles, Practice and Possibilities'. In *Brave New World? Theology, Ethics and the Human Genome*, edited by Celia Deane-Drummond, 5–26. London: T&T Clark, 2003.

Buchanan, Ian, ed. 'Critical Theory'. In *A Dictionary of Critical Theory*. Oxford: Oxford University Press, 2010.

———, ed. 'Frankfurt School'. In *A Dictionary of Critical Theory*. Oxford: Oxford University Press, 2010.

———, ed. 'Posthumanism'. In *A Dictionary of Critical Theory*. Oxford: Oxford University Press, 2016.

Burdett, Michael. *Eschatology and the Technological Future*. Routledge Studies in Religion. Oxford: Routledge, 2015.

Burning Man Project. 'Burning Man'. burningman.org, 2018 1989. https://burningman.org.

Campbell, Colin. 'The Cult, the Cultic Milieu and Secularization'. In *The Cultic Milieu: Oppositional Subcultures in an Age of Globalization*, edited by Jeffrey Kaplan and Heléne Lööw, 12–25. Oxford: AltaMira Press, 2002.

Campbell, Joseph. *The Hero with a Thousand Faces*. 3rd ed. Novato, CA: New World Library, 2008.

Canavan, Gerry. 'Hope, But Not for Us: Ecological Science Fiction and the End of the World in Margaret Atwood's Oryx and Crake and The Year of the Flood'. *Lit: Literature Interpretation Theory* 23, no. 2 (2012): 138–59. https://doi.org/10.1080/10436928.2012.676914.

Caplan, Arthur L. 'What's Morally Wrong with Eugenics?' In *Controlling Our Destinies: Historical, Philosophical, Ethical, and Theological Perspectives on the Human Genome Project*, edited by Phillip R. Sloan, 209–22. Notre Dame, Indiana: University of Notre Dame Press, 2000.

Capra, Fritjof. *The Tao of Physics: An Exploration of the Parallels Between Modern Physics and Eastern Mysticism*. London: Wildwood House, 1975.

Caraher, Brian G. 'Genre Theory: Cultural and Historical Motives Engendering Literary Genre'. In *Genre Matters: Essays in Theory and Criticism*, edited by Garin Dowd, Lesley Stevenson, and Jeremy Strong, 29–39. Bristol: Intellect Books, 2006.

Carr, David. 'Narrative and the Real World: An Argument for Continuity'. *History and Theory* 25, no. 2 (May 1986): 117–31.

Carrette, Jeremy, and Richard King. *Selling Spirituality: The Silent Takeover of Religion*. London: Routledge, 2005.

Carroll, Joseph. *Evolution and Literary Theory*. Columbia, MI: University of Missouri Press, 1995.

———. 'Teaching Literary Darwinism'. *Style* 47, no. 2 (2013): 206–38.

———. 'The Truth about Fiction: Biological Reality and Imaginary Lives'. *Style* 46, no. 2 (2012): 129–60.

Cavanagh, Michael E. 'Moral Imperviousness and the Tabula Rasa Fallacy: A Contribution From the Neurosciences'. *Journal of College and Character* 7, no. 6 (2006): 1–12. https://doi.org/10.2202/1940-1639.1202.

Charles, Ron. 'The Brave New World of Genetic Engineering; Margaret Atwood Follows Today's Trends Into a Terrifying Oblivion'. *Christian Science Monitor*, 8 May 2003, 18.

Ciabattari, Jane. 'Disease and Dystopia in Atwood's "Flood"'. NPR Books, 10 September 2009. http://www.npr.org/templates/story/story.php?storyId=112706370.

Ciobanu, Calina. 'Rewriting the Human at the End of the Anthropocene in Margaret Atwood's MaddAddam Trilogy'. *Minnesota Review*, New Series, 83, no. 1 (2014): 153–62.

Clayton, Philip, ed. *The Oxford Handbook of Religion and Science*. Oxford: Oxford University Press, 2008.

Cole, Amanda. 'In Retrospect: Writing and Reading Oryx and Crake'. *Philament: An Online Journal of the Arts and Culture* 6 (July 2005): n.p. http://www.philamentjournal.com/wp-content/uploads/2016/06/ACole_In-Retrospect.pdf.

Colie, Rosalie. *The Resources of Kind: Genre-Theory in the Renaissance*. Berkeley, California: University of California Press, 1973.

Comte, Auguste. *Cours de Philosophie Positive*. 6 vols. Paris: Bachelier, Libraire pour les Mathématiques, Quai des Augustins, No. 55, 1830.

Comte, Auguste, and Harriet Martineau. *The Positive Philosophy of Auguste Comte Freely Translated and Condensed by Harriet Martineau in Two Volumes*. Vol. 1. 2 vols. Chapman's Quarterly Series 3. London: John Chapman, 1853.

Coninck, H. de, A. Revi, M. Babiker, P. Bertoldi, M. Buckeridge, A. Cartwright, W. Dong, et al. 'Strengthening and Implementing the Global Response'. In *Global Warming of 1.5°C: An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty*, edited by V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, et al., 313–443, In Press.

Connolly, William E. 'The "New Materialism" and the Fragility of Things'. *Millennium: Journal of International Studies* 41, no. 3 (June 2013): 399–412. https://doi.org/10.1177/0305829813486849.

Conradie, Ernst, Sigurd Bergmann, Celia Deane-Drummond, and Denis Edwards. 'Discourse on Christian Faith and the Earth'. In *Christian Faith and the Earth: Current Paths and Emerging Horizons in Ecotheology*, edited by Ernst Conradie, Sigurd Bergmann, Celia Deane-Drummond, and Denis Edwards, 1–10. London: Bloomsbury, 2014.

Cooke, Grayson. 'Technics and the Human at Zero-Hour: Margaret Atwood's Oryx and Crake'. *Studies in Canadian Literature/Etudes En Littérature Canadienne* 31, no. 2 (2006): 105–25.

Copley, Soraya. 'Rereading Marge Piercy and Margaret Atwood: Eco-Feminist Perspectives on Nature and Technology'. *Critical Survey* 25, no. 2 (2013): 40–56. https://doi.org/10.3167/cs.2013.250204.

Cragun, Ryan T. 'Science and Religion'. In *International Encyclopedia of the Social and Behavioral Sciences*, edited by James D. Wright, 21:172–75. Amsterdam: Elsevier, 2015.

Crawford, Robert, ed. *Contemporary Poetry and Contemporary Science*. Oxford: Oxford University Press, 2006.

Crum, Maddie. 'A Conversation with Margaret Atwood About Climate Change, Social Media and World of Warcraft'. *The Huffington Post*. 11 December 2014, UK edition, sec. Books. http://m.huffpost.com/us/entry/6141840.

Cusack, Carole M. *Invented Religions: Imagination, Fiction, and Faith*. Farnham: Ashgate, 2010.

Cusack, Carole M., and Pavol Kosnáč, eds. *Fiction, Invention and Hyper-Reality: From Popular Culture to Religion*. Routledge Inform Series on Minority Religions and Spiritual Movements. New York: Routledge, 2016.

———. 'Introduction: Fiction, Invention and Hyper-Reality in New Religions and Spiritualities'. In *Fiction, Invention and Hyper-Reality: From Popular Culture to Religion*, edited by Carole M. Cusack and Pavol Kosnáč, 1–12. Routledge Inform Series on Minority Religions and Spiritual Movements. New York: Routledge, 2016.

David, Sophia. 'The Apocalyptic Depiction of Climate Change and Its Usefulness to Pro-Environmental Behaviour'. Master's Dissertation, The University of Edinburgh, 2011.

Davidsen, Markus Altena. 'Fiction-Based Religion: Conceptualizing a New Category Against History-Based Rleigion and Fandom'. *Culture and Religion* 14, no. 4 (2013): 378–95.

———. 'The Spiritual Milieu Based on J.R.R. Tolkien's Literary Mythology'. In *Handbook of Hyper-Real Religions*, edited by Adam Possamai, 185–204. Leiden: Brill, 2012.

Davies, Paul. 'Physics and the Mind of God: The Templeton Prize Address'. *First Things: A Monthly Journal of Religion & Public Life*, no. 55 (1995): 31–35.

Davis, Stephen T. '"Seeing" the Risen Jesus'. In *The Resurrection: An International Symposium on the Resurrection of Jesus*, edited by Stephen T. Davis, Daniel Kendall, and Gerald O'Collins, 126–47. Oxford: Oxford University Press, 1997.

Dawkins, Richard. *The God Delusion*. London: Black Swan, 2007.

De Smedt, Johan, and Helen De Cruz. 'The Epistemic Value of Speculative Fiction'. *Midwest Studies in Philosophy* 39, no. 1 (2015): 58–77. https://doi.org/10.1111/misp.12035.

Deane-Drummond, Celia. 'Beyond Humanity's End: An Exploration of a Dramatic versus Narrative Rhetoric and Its Ethical Implications'. In *Future Ethics: Climate Change and Apocalyptic Imagination*, edited by Stefan Skrimshire, 242–59. London: Continuum, 2010.

———. 'Biotechnology: A New Challenge to Theology and Ethics'. In *God, Humanity and the Cosmos*, edited by Christopher Southgate, 3rd ed., 390–419. London: Bloomsbury, 2011.

———. 'Climate Change: Engaging Theology with Science in Society'. In *God, Humanity and the Cosmos: A Textbook in Science and Religion*, edited by Christopher Southgate, 3rd ed., 420–40. New York: T&T Clark International, 2011.

———. *Eco-Theology*. London: Darton, Longman and Todd, 2008.

———. 'Theology, Ecology, and Values'. In *The Oxford Handbook of Religion and Science*, edited by Philip Clayton, 891–907. Oxford: Oxford University Press, 2008.

———. 'Who on Earth Is Jesus Christ? Plumbing the Depths of Deep Incarnation'. In *Christian Faith and the Earth: Current Paths and Emerging Horizons in Ecotheology*, edited by Ernst Conradie, Sigurd Bergmann, Celia Deane-Drummond, and Denis Edwards, 31–50. London: Bloomsbury, 2014.

Deery, June. *Aldous Huxley and the Mysticism of Science*. London: Macmillan Press, 1996.

Defalco, Amelia. 'MaddAddam, Biocapitalism, and Affective Things'. *Contemporary Women's Writing* 11, no. 3 (2017): 432–51. https://doi.org/10.1093/cwwrit/vpx008.

Delio, Ilia. *The Unbearable Wholeness of Being: God, Evolution and the Power of Love*. Maryknoll, NY: Orbis Books, 2013.

Derrida, Jacques. 'Plato's Pharmacy'. In *Dissemination*, translated by Barbara Johnson, 67–186. London: Continuum, 1981.

Devall, Bill, and George Sessions. *Deep Ecology: Living as If Nature Mattered*. Salt Lake City, UT: Gibbs M. Smith, Inc., 1985.

Devereux, Paul. *The Long Trip: A Prehistory of Psychedelia*. Brisbane: Daily Grail Publishing, 2008.

Dick, Philip K. *Do Androids Dream of Electric Sheep?* New ed. SF Masterworks. London: Gollancz, 2007.

Dickinson, Emily. *The Poems of Emily Dickinson*. Edited by R. W. Franklin. Cambridge, MA: Belknap Press, 1998.

———. *The Poems of Emily Dickinson: Including Variant Readings Critically Compared with All Known Manuscripts*. Edited by Thomas Johnson. Cambridge, MA: Belknap Press, 1955.

DiMarco, Danette. 'Going Wendigo: The Emergence of the Iconic Monster in Margaret Atwood's Oryx and Crake and Antonia Bird's Ravenous'. *College Literature* 38, no. 4 (Fall 2011): 134–55.

Dobzhansky, Theodosius. 'The Myths of Genetic Predestination and of Tabula Rasa'. *Perspectives in Biology and Medicine* 19, no. 2 (1976): 156–70.

Dunning, Stephen. 'Margaret Atwood's Oryx and Crake: The Terror of the Therapeutic'. *Canadian Literature*, no. 186 (Autumn 2005): 86–101.

Eagleton, Terry. *Literary Theory: An Introduction*. Anniversary edition. Malden, MA: Blackwell Publishing, 2008.

Eberwein, Jane. '"Is Immortality True?" Salvaging Faith in an Age of Upheavals'. In *A Historical Guide to Emily Dickinson*, edited by Vivian Pollak, 67–102. Oxford: Oxford University Press, 2004.

———. 'Outgrowing Genesis? Dickinson, Darwin, and the Higher Criticism'. In *Dickinson and Philosophy*, edited by Marianne Noble, Jed Deppmann, and Gary Lee Stonum, 47–67. Cambridge: Cambridge University Press, 2013.

Ecklund, Elaine Howard. *Science vs Religion: What Do Scientists Really Believe?* Oxford: Oxford University Press, 2010.

Ecklund, Elaine Howard, and Christopher P. Scheitle. *Religion vs. Science: What Religious People Really Think*. Oxford: Oxford University Press, 2018.

Efthimiou, Milton. 'Orthodoxy and the Ecological Crisis'. In *Ecotheology: Voices from South and North*, edited by David Hallman, 92–95. Geneva: World Council of Churches, 1994.

'EROWID: Documenting the Complex Relationship Between Humans & Psychoactives'. Erowid.org, 2017 1995. https://www.erowid.org.

Eve, Eric. *The Healer from Nazareth: Jesus' Miracles in Historical Context*. London: SPCK, 2009.

Fanshawe, John. 'From Ground-Breaking Book Tour to Documentary Film'. BirdLife International, 17 December 2010. http://www.birdlife.org/pacific/news/ground-breaking-book-tour-documentary-film.

Fewell, Danna Nolan. 'The Work of Biblical Narrative'. In *The Oxford Handbook of Biblical Narrative*, edited by Danna Nolan Fewell, 3–26. Oxford: Oxford University Press, 2016.

Fish, Stanley. *Is There a Text in This Class? The Authority of Interpretive Communities*. Cambridge, Massachusetts: Harvard University Press, 1980.

Fitzgerald, Timothy. 'A Critique of "Religion" as a Cross-Cultural Category'. *Method and Theory in the Study of Religion* 9, no. 2 (1997): 91–110.

Flanagan, Owen. *Dreaming Souls: Sleep, Dreams, and the Evolution of the Conscious Mind*. Oxford: Oxford University Press, 2000.

'FOXP2 Gene'. Genetics Home Reference: Your Guide to Understanding Genetic Conditions, 2 January 2018. https://ghr.nlm.nih.gov/gene/FOXP2#.

Frow, John. '"Reproducibles, Rubrics, and Everything You Need": Genre Theory Today'. *PMLA* 122, no. 5 (2007): 1626–34.

Frye, Northrop. *The Great Code: The Bible and Literature*. London: Routledge & Kegan Paul, 1982.

Fuller, Robert C. *Spiritual, but Not Religious: Understanding Unchurched America*. Oxford: Oxford University Press, 2001.

Garrard, Greg. 'Reading as an Animal: Ecocriticism and Darwinism in Margaret Atwood and Ian McEwan'. In *Local Natures, Global Responsibilities: Ecocritical Perspectives on the New English Literatures*, edited by Laurenz Volkmann, Nancy Grimm, Ines Detmers, and Katrin Thomson, 223–42. Amsterdam: Rodopi, 2010.

Gerrig, Richard J. *Experiencing Narrative Worlds: On the Psychological Activities of Reading*. New Haven, Connecticut: Yale University Press, 1993.

Glover, Jayne. 'Human/Nature: Ecological Philosophy in Margaret Atwood's Oryx and Crake'. *English Studies in Africa* 52, no. 2 (2009): 50–62. https://doi.org/10.1080/00138390903444149.

Goodeve, Thyrza Nichols. *How Like a Leaf: A Conversation with Donna J. Haraway*. New York: Routledge, 2000.

Gottschall, Jonathan. *The Storytelling Animal: How Stories Make Us Human*. New York: Mariner Books, 2013.

Gould, Stephen Jay. 'Nonoverlapping Magisteria'. *Natural History* 106, no. 2 (1997): 16–22.

Grau, Marion. 'Caribou and Carbon Colonialism: Toward a Theology of Arctic Place'. In *EcoSpirit: Religions and Philosophies for the Earth*, edited by Laurel Kearns and Catherine Keller, 433–53. New York: Fordham University Press, 2007.

Greer, Andrew Sean. 'Final Showdown'. *The New York Times*, 8 September 2013, sec. New York Times Book Review.

Griffioen, Amber. 'The SDA Reader: Religious Experience'. The Special Divine Action Project. Accessed 9 June 2019. https://sda.bodleian.ox.ac.uk/sda/#!/themes/article/338.

Griffiths, Anthony. 'Genetics According to Oryx and Crake'. *Canadian Literature* 181 (Summer 2004): 192–95.

Griffiths, R. R., E. S. Hurwitz, A. K. Davis, M. W. Johnson, and R. Jesse. 'Survey of Subjective "God Encounter Experiences": Comparisons Among Naturally Occurring Experiences and Those Occasioned by the Classic Psychedelics Psilocybin, LSD, Ayahuasca, or DMT'. *PLoS ONE* 14, no. 4 (2019): e0214377. https://doi.org/10.1371/journal.pone.0214377.

Griffiths, R. R., W. A. Richards, U. McCann, and R. Jesse. 'Psilocybin Can Occasion Mystical-Type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance'. *Psychopharmacology* 187 (2006): 268–83. https://doi.org/10.1007/s00213-006-0457-5.

Griffiths, R. R., M. W. Johnson, W. A. Richards, B. D. Richards, R. Jesse, K. A. MacLean, F. S. Barrett, M. P. Cosimano, and M. A. Klinedinst. 'Psilocybin-Occasioned Mystical-Type Experience in Combination with Meditation and Other Spiritual Practices Produces Enduring Positive Changes in Psychological Functioning and in Trait Measures of Prosocial Attitudes and Behaviors'. *Journal of Psychopharmacology* 32, no. 1 (2018): 49–69. https://doi.org/10.1177/0269881117731279.

Griffiths, R. R., W. A. Richards, M. W. Johnson, U. D. McCann, and R .Jesse. 'Mystical-Type Experiences Occasioned by Psilocybin Mediate the Attribution of Personal Meaning and Spiritual Significance 14 Months Later'. *Journal of Psychopharmacology* 22, no. 6 (2008): 621–32. https://doi.org/10.1177/0269881108094300.

Grumett, David. 'Teilhard de Chardin's Evolutionary Natural Theology'. *Zygon* 42, no. 2 (2007): 519–34.

Gunter, Michael. 'Earth First!' In *Green Culture: An A-to-Z Guide*, edited by Kevin Wehr, EBook., 232–36. Thousand Oaks: SAGE Publications, 2011.

Gussow, Mel. 'Atwood's Dystopian Warning; Hand-Wringer's Tale of Tomorrow'. *The New York Times*. 24 June 2003, Online edition, sec. Books. https://www.nytimes.com/2003/06/24/books/atwood-s-dystopian-warning-hand-wringer-s-tale-of-tomorrow.html?pagewanted=I.

Habel, Norman. 'The Earth Bible Project'. SBL Forum Archive, July 2004. https://www.sbl-site.org/publications/article.aspx?articleId=291.

Hallanger, Nathan J. 'Ian G. Barbour'. In *The Blackwell Companion to Science and Christianity*, edited by J. B. Stump and Alan G. Padgett, 600–610. Chichester, West Sussex: Wiley-Blackwell, 2012.

Hallman, David, ed. *Ecotheology: Voices from South and North*. Geneva: World Council of Churches, 1994.

Ham, Ken. 'Evolution Is Obsolete (Creation Science)'. *Practical Homeschooling* 34 (2000): 48.

Hamer, Dean. *The God Gene: How Faith Is Hardwired into Our Genes*. New York: Doubleday, 2004.

Haraway, Donna. ‘A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century’. In *Simians, Cyborgs, and Women: The Reinvention of Nature*, 149–81. London: Free Association Books, 1991.

———. ‘A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s’. *Australian Feminist Studies* 2, no. 4 (1987): 1–42. https://doi.org/10.1080/08164649.1987.9961538.

———. ‘A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s’. In *The Norton Anthology of Theory and Criticism*, edited by Vincent B. Leitch, 2nd ed., 2190–2220. New York: W. W. Norton & Company, 2010.

———. ‘Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s’. *Socialist Review* 80 (1985): 65–108.

———. *Modest_Witness@Second_Millennium.FemaleMan©_Meets_OncoMouse™: Feminism and Technoscience*. New York: Routledge, 1997.

———. *Simians, Cyborgs, and Women: The Reinvention of Nature*. London: Free Association Books, 1991.

———. *Staying with the Trouble: Making Kin in the Chthulucene*. EBook. Experimental Futures. Durham: Duke University Press, 2016.

Hardy, Alister. *The Divine Flame: An Essay Towards a Natural History of Religion*. Oxford: The Religious Experience Research Unit, 1966.

———. *The Living Stream: A Restatement of Evolution Theory and Its Relation to the Spirit of Man*. London: Collins, 1965.

Harris, Harriet. ‘Prayer’. In *The Cambridge Companion to Christian Philosophical Theology*, edited by Charles Taliaferro and Chad Meister, Online ed., 216–37. Cambridge Companions. Oxford: Oxford University Press, 2010. https://doi-org.ezproxy.is.ed.ac.uk/10.1017/CCOL9780521514330.

Harris, Mark. ‘“Heretical … Dangerous and Potentially Subversive”: The Problem of Science and Religion in Aldous Huxley’s Brave New World’. Paper presented to the Science, Religion and Technology Unit at the 2014 American Academy of Religion Annual Meeting, San Diego, CA, 2014.

———. *The Nature of Creation: Examining the Bible and Science*. Durham: Acumen, 2013.

Harrison, Peter. *The Territories of Science and Religion*. Chicago, IL: University of Chicago Press, 2015.

Hartt, Julian. ‘Theological Investments in Story: Some Comments on Recent Developments and Some Proposals’. In *Why Narrative? Readings in Narrative Theology*, edited by Stanley Hauerwas and L. Gregory Jones, 279–92. Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989.

Hauerwas, Stanley. *A Community of Character: Toward a Constructive Christian Social Ethic*. Notre Dame, Indiana: University of Notre Dame Press, 1981.

———. ‘The Sanctified Body: Why Perfection Does Not Require a “Self”’. In *Embodied Holiness: Toward a Corporate Theology of Spiritual Growth*, edited by Samuel M. Powell and Michael E. Lodahl, 19–38. Downers Grove, IL: Inter-Varsity Press, 1999.

———. ‘Why the Truth Demands Truthfulness: An Imperious Engagement with Hartt’. In *Why Narrative? Readings in Narrative Theology*, edited by Stanley Hauerwas and L. Gregory Jones, 303–10. Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989.

Hauerwas, Stanley, and David Burrell. ‘From System to Story: An Alternative Pattern for Rationality in Ethics’. In *Why Narrative? Readings in Narrative Theology*, edited by Stanley Hauerwas and L. Gregory Jones, 158–90. Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989.

Hauerwas, Stanley, and L. Gregory Jones. ‘Introduction: Why Narrative?’ In *Why Narrative? Readings in Narrative Theology*, edited by Stanley Hauerwas and L. Gregory Jones, 1–18. Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989.

Haught, John F. *The New Cosmic Story: Inside Our Awakening Universe*. New Haven, CT: Yale University Press, 2017.

Havea, Jione, and Monica Jyotsna Melanchthon. ‘Culture Tricks in Biblical Narrative’. In *The Oxford Handbook of Biblical Narrative*, edited by Danna Nolan Fewell, 563–72. Oxford: Oxford University Press, 2016.

Hayles, N. Katherine. *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. Chicago: University of Chicago Press, 1999.

Heelas, Paul. *The New Age Movement: The Celebration of the Self and the Sacralization of Modernity*. Oxford: Blackwell Publishing, 1996.

Heelas, Paul, and Linda Woodhead. *The Spiritual Revolution: Why Religion Is Giving Way to Spirituality*. Oxford: Blackwell Publishing, 2005.

Heide, Gale. *System and Story: Narrative Critique and Construction in Theology*. Princeton Theological Monograph Series. Eugene, Oregon: Pickwick Publications, 2009.

Hengen, Shannon. ‘Moral/Environmental Debt in Payback and Oryx and Crake’. In *Margaret Atwood: The Robber Bride, The Blind Assassin, Oryx and Crake*, edited by J. Brooks Bouson, EBook., 79–85. EBSCOhost: EBSCO Publishing, 2010.

Herman, David. ‘Cognitive Narratology’. In *Handbook of Narratology*, edited by Peter Hühn, John Pier, Wolf Schmid, and Jörg Schönert, 30–43. Narratologia: Contributions to Narrative Theory 19. Berlin: Walter de Gruyter, 2009.

———. ‘Cognitive Narratology (Revised Version; Uploaded 22 September 2013)’. In *The Living Handbook of Narratology*, edited by Peter Hühn, John Pier, Wolf Schmid, and Jörg Schönert. Hamburg: Hamburg University. Accessed 9 January 2017. http://www.lhn.uni-hamburg.de/article/cognitive-narratology-revised-version-uploaded-22-september-2013.

———. ‘Introduction’. In *Narrative Theory and the Cognitive Sciences*, edited by David Herman, 1–30. Stanford, CA: CSLI Publications, 2003.

Hessel, Dieter, ed. *Theology for Earth Community: A Field Guide*. Maryknoll, NY: Orbis Books, 1996.

Hick, John. *The Fifth Dimension: An Exploration of the Spiritual Realm*. Oxford: Oneworld Publications, 1999.

———. *The New Frontier of Religion and Science: Religious Experience, Neuroscience and the Transcendent*. New York: Palgrave Macmillan, 2006.

Hobson, J. A. *Dreaming as Delirium: How the Brain Goes Out of Its Mind*. Cambridge, MA: MIT Press, 1999.

Hobson, J. A., Edward F. Pace-Schott, and Robert Stickgold. 'Dreaming and the Brain: Toward a Cognitive Neuroscience of Conscious States'. *Behavioral and Brain Sciences* 23, no. 6 (2000): 793–1121.

Hoogheem, Andrew. 'Secular Apocalypses: Darwinian Criticism and Atwoodian Floods'. *Mosaic: A Journal for the Interdisciplinary Study of Literature* 45, no. 2 (June 2012): 55–71.

Horrell, David G. *The Bible and the Environment: Towards a Critical Ecological Biblical Theology*. London: Equinox, 2010.

Howells, Coral Ann. *Margaret Atwood*. 2nd ed. Basingstoke: Palgrave Macmillan, 2005.

———. 'Margaret Atwood's Dystopian Visions: The Handmaid's Tale and Oryx and Crake'. In *The Cambridge Companion to Margaret Atwood*, edited by Coral Ann Howells, 161–75. Cambridge Companions Complete Collection: Cambridge Companions to Literature and Classics. Cambridge: Cambridge University Press, 2006.

———, ed. *The Cambridge Companion to Margaret Atwood*. Cambridge Companions Complete Collection: Cambridge Companions to Literature and Classics. Cambridge: Cambridge University Press, 2006.

'Human Genome Announcement at the White House (2000)'. The White House: National Human Genome Research Institute, 26 June 2000. https://www.youtube.com/watch?v=slRyGLmt3qc.

Humphreys, Colin J. *The Miracles of Exodus: A Scientist's Discovery of the Extraordinary Natural Causes of the Biblical Stories*. New York: HarperCollins Publishers, 2003.

Huxley, Aldous. *The Doors of Perception and Heaven and Hell*. London: Vintage Books, 2004.

———. *The Perennial Philosophy*. London: Chatto & Windus, 1946.

International Research Network for the Study of Science and Belief in Society. 'About'. International Research Network for the Study of Science & Belief in Society, 2019. https://www.scienceandbeliefinsociety.org/about/.

James, Henry. 'The Art of Fiction'. *Longman's Magazine*, 1884.

James, William. *The Varieties of Religious Experience: A Study in Human Nature*. Penguin Classics. New York: Penguin Books, 1985.

Jameson, Fredric. *Postmodernism, or, The Cultural Logic of Late Capitalism*. Post-Contemporary Interventions. Durham, NC: Duke University Press, 1991.

———. *The Seeds of Time*. New York: Columbia University Press, 1994.

———. 'Then You Are Them'. *London Review of Books* 31, no. 17 (10 September 2009): 7–8.

Jasper, David. *Literature and Theology as a Grammar of Assent*. Farnham: Ashgate, 2016.

———. ‘The Study of Literature and Theology’. In *The Oxford Handbook of English Literature and Theology*, edited by Andrew W. Hass, David Jasper, and Elisabeth Jay, 15–32. Oxford: Oxford University Press, 2007.

Jobling, J’annine. *Fantastic Spiritualities: Monsters, Heroes, and the Contemporary Religious Imagination*. London: T&T Clark International, 2010.

John, Peter. ‘History of Science’. In *Science, Technology, and Society: An Encyclopedia*, edited by Sal Restivo. Oxford: Oxford University Press, 2006.

Jung, C. G. *The Archetypes and the Collective Unconscious*. London: Routledge & Kegan Paul, 1959.

Kassam, Ashifa. ‘The Toxic Legacy of Canada’s CIA Brainwashing Experiments: “They Strip You of Your Soul”’. *The Guardian*. 3 May 2018, UK edition, sec. World: Americas. https://www.theguardian.com/world/2018/may/03/montreal-brainwashing-allan-memorial-institute.

Kawashima, Robert S. ‘Biblical Narrative and the Birth of Prose Literature’. In *The Oxford Handbook of Biblical Narrative*, edited by Danna Nolan Fewell, 51–60. Oxford: Oxford University Press, 2016.

Keane, Patrick J. *Emily Dickinson’s Approving God: Divine Design and the Problem of Suffering*. Columbia, MI: University of Missouri Press, 2008.

Kearns, Laurel, and Catherine Keller. ‘Preface’. In *Ecospirit: Religions and Philosophies for the Earth*, edited by Laurel Kearns and Catherine Keller, xi–xvi. New York: Fordham University Press, 2007.

Keenan, Catherine. ‘She Who Laughs Last’. The Sydney Morning Herald, 3 May 2003. http://www.smh.com.au/articles/2003/05/02/1051382088211.html.

Keller, Evelyn Fox. ‘Is There an Organism in This Text?’ In *Controlling Our Destinies: Historical, Philosophical, Ethical, and Theological Perspectives on the Human Genome Project*, edited by Phillip R. Sloan, 273–89. Notre Dame, IN: University of Notre Dame Press, 2000.

Kenney, Peter. ‘Proceedings of the Centre for the Study of Theology and Health: Story, Storytelling and Meaning’. *Chrism* 54, no. 1 (2017): 23–25.

Kitcher, Philip. ‘Utopian Eugenics and Social Inequality’. In *Controlling Our Destinies: Historical, Philosophical, Ethical, and Theological Perspectives on the Human Genome Project*, edited by Phillip Sloan, 229–62. Notre Dame, Indiana: University of Notre Dame Press, 2000.

Kleber, Herbert D. ‘Commentary on: Psilocybin Can Occasion Mystical-Type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance by Griffiths et Al.’ *Psychopharmacology* 187 (2006): 291–92. https://doi.org/10.1007/s00213-006-0461-9.

Klein, Kitty. ‘Narrative Construction, Cognitive Processing, and Health’. In *Narrative Theory and the Cognitive Sciences*, edited by David Herman, 56–84. Stanford, CA: CSLI Publications, 2003.

Knight, Christopher C. ‘John Polkinghorne’. In *The Blackwell Companion to Science and Christianity*, edited by J. B. Stump and Alan G. Padgett, 622–31. Chichester, West Sussex: Wiley-Blackwell, 2012.

Knight, Damon. ‘Book Reviews: The Dissecting Table’. *Science Fiction Adventures* 1, no. 1 (1952): 122–25.

Kristan-Tollmann, Edith, and Alexander Tollmann. ‘The Youngest Big Impact on Earth Deduced from Geological and Historical Evidence’. *Terra Nova* 6, no. 2 (1994): 209–17.

Kuhn, Thomas S. *The Structure of Scientific Revolutions*. 50th Anniversary Edition. Chicago, Illinois: University of Chicago Press, 2012.

Lamarque, Peter. *Fictional Points of View*. Ithaca, NY: Cornell University Press, 1996.

Lambert, Laura. ‘Earth First!’ In *The SAGE Encyclopedia of Terrorism*, edited by Gus Martin, EBook., 165–66. Thousand Oaks: SAGE Publications, 2011.

Lander, Eric S., Lauren M. Linton, Bruce Birren, Chad Nusbaum, Michael C. Zody, Jennifer Baldwin, Keri Devon, et al. ‘Initial Sequencing and Analysis of the Human Genome’. *Nature* 409, no. 6822 (15 February 2001): 860–921. https://doi.org/10.1038/35057062.

Langlitz, Nicolas. *Neuropsychedelia: The Revival of Hallucinogen Research since the Decade of the Brain*. Online ed. Berkeley, CA: University of California Press, 2013.

Lash, Nicholas. ‘Theory, Theology and Ideology’. In *The Sciences and Theology in the Twentieth Century*, edited by A. R. Peacocke, 209–28. Stocksfield: Oriel Press, 1981.

Lawson, Gerard. ‘The Hero’s Journey as a Developmental Metaphor in Counseling’. *Journal of Humanistic Counseling, Education and Development* 44, no. 2 (2005): 134–44.

Le Guin, Ursula K. ‘Do-It-Yourself Cosmology’. In *The Language of the Night: Essays on Fantasy and Science Fiction*, edited by Ursula K. Le Guin and Susan Wood, Revised ed., 103–6. London: The Women’s Press Ltd, 1989.

———. ‘Introduction to The Left Hand of Darkness’. In *The Language of the Night: Essays on Fantasy and Science Fiction*, edited by Ursula K. Le Guin and Susan Wood, Revised ed., 130–34. London: The Women’s Press Ltd, 1989.

———. ‘Review of The Year of the Flood by Margaret Atwood’. *The Guardian*, 29 August 2009. http://www.theguardian.com/books/2009/aug/29/margaret-atwood-year-of-flood.

———. ‘Science Fiction and Mrs Brown’. In *The Language of the Night: Essays on Fantasy and Science Fiction*, edited by Susan Wood and Ursula K. Le Guin, Revised ed., 86–102. London: The Women’s Press Ltd, 1989.

Lee, Hermione. ‘Introduction’. In *To the Lighthouse*, by Virginia Woolf, ix–xliii, Annotated ed. London: Penguin Books, 1992.

Lee, Martha. *Earth First! Environmental Apocalypse*. Syracuse, NY: Syracuse University Press, 1995.

Lee, Martin A., and Bruce Shlain. *Acid Dreams: The Complete Social History of LSD: The CIA, the Sixties and Beyond*. Revised ed. London: Pan, 2001.

Leitch, Vincent B., ed. ‘Introduction to Theory and Criticism’. In *The Norton Anthology of Theory and Criticism*, 2nd ed., 1–33. New York: W. W. Norton & Company, 2010.

———, ed. ‘Martha C. Nussbaum’. In *The Norton Anthology of Theory and Criticism*, 2nd ed., 2302–5. New York: W. W. Norton & Company, 2010.

———, ed. ‘Stanley E. Fish’. In *The Norton Anthology of Theory and Criticism*, 2nd ed., 1970–73. New York: W. W. Norton & Company, 2010.

Leporini, Nicola. ‘Green Practices: Textual and Extratextual Environmentalism in The Year of the Flood’. In *Green Canada*, edited by Oriana Palusci, 31:275–80. Canadian Studies. Brussels: P.I.E. Peter Lang, 2016.

Lévi-Strauss, Claude. ‘The Structural Study of Myth’. *The Journal of American Folklore* 68, no. 270 (1955): 428–44.

Linafelt, Tod. ‘Poetry and Biblical Narrative’. In *The Oxford Handbook of Biblical Narrative*, edited by Danna Nolan Fewell, 84–92. Oxford: Oxford University Press, 2016.

Long, Susanne. ‘Bibliotherapy’. In *Encyclopedia of Child Behavior and Development*, edited by Sam Goldstein and Jack A. Naglieri, 237–38. New York: Springer, 2011.

Lucie-Smith, Alexander. *Narrative Theology and Moral Theology: The Infinite Horizon*. Ashgate New Critical Thinking in Religion, Theology and Biblical Studies Series. Farnham: Ashgate, 2007.

Lumsden, Charles. ‘Cultural Evolution and the Devolution of Tabula Rasa’. *Journal of Social and Biological Structures* 6, no. 2 (1983): 101–14.

Lyotard, Jean-François. *The Postmodern Condition: A Report on Knowledge*. Translated by Geoff Bennington and Brian Massumi. Theory and History of Literature 10. Manchester: Manchester University Press, 1984.

Macey, David. ‘Genre’. In *The Penguin Dictionary of Critical Theory*, 158–60. London: Penguin Books, 2000.

MacIntyre, Alasdair. ‘The Virtues, the Unity of a Human Life, and the Concept of a Tradition’. In *Why Narrative? Readings in Narrative Theology*, edited by Stanley Hauerwas and L. Gregory Jones, 89–110. Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989.

Macpherson, Heidi Slettedahl. *The Cambridge Introduction to Margaret Atwood*. Cambridge Introductions to Literature. Cambridge: Cambridge University Press, 2010.

Malmgren, Carl D. *Worlds Apart: Narratology of Science Fiction*. Bloomington, Indiana: Indiana University Press, 1991.

Mann, Ron. *In the Wake of the Flood*. Documentary. Sphinx Productions, 2010.

Mar, Raymond A. ‘The Neuropsychology of Narrative: Story Comprehension, Story Production and Their Interrelation’. *Neuropsychologia* 42 (2004): 1414–34. https://doi.org/10.1016/j.neuropsychologia.2003.12.016.

Margolin, Uri. ‘Cognitive Science, the Thinking Mind, and Literary Narrative’. In *Narrative Theory and the Cognitive Sciences*, edited by David Herman, 271–94. Stanford, CA: CSLI Publications, 2003.

McAvan, Emily. ‘The Postmodern Sacred’. *Journal of Religion and Popular Culture* 22, no. 1 (Spring 2010): 1–23.

———. *The Postmodern Sacred: Popular Culture Spirituality in the Science Fiction, Fantasy and Urban Fantasy Genres*. Jefferson, North Carolina: McFarland & Company, 2012.

McGrath, James F. ‘Introduction: Religion and Science Fiction’. In *Religion and Science Fiction*, edited by James F. McGrath, EBook., 1–8. Cambridge: Lutterworth Press, 2012.

———. *Theology and Science Fiction*. Cascade Companions Series. Eugene, Oregon: Cascade Books, 2016.

McGuire, Meredith B. *Lived Religion: Faith and Practice in Everyday Life*. Oxford: Oxford University Press, 2008.

McLeish, Tom. *The Poetry and Music of Science: Comparing Creativity in Science and Art*. Oxford: Oxford University Press, 2019.

Mercadante, Linda A. *Belief without Borders: Inside the Minds of the Spiritual but Not Religious*. Oxford: Oxford University Press, 2014.

Meyer-Abich, Klaus Michael. ‘Natural Philosophy’. In *Religion Past and Present Online*, edited by Hans Dieter Betz, Don S. Browning, Bernd Janowski, and Eberhard Jüngel. Leiden: Brill, 2011. http://dx.doi.org.ezproxy.is.ed.ac.uk/10.1163/1877-5888_rpp_COM_024039.

Midgley, Mary. *Evolution as a Religion: Strange Hopes and Stranger Fears*. London: Methuen, 1985.

Mikaelsson, Lisbeth. ‘New Age and the Spirit of Capitalism: Energy as Cognitive Currency’. In *New Age Spirituality: Rethinking Religion*, edited by Steven J. Sutcliffe and Ingvild Sælid Gilhus, 160–73. Durham: Acumen, 2013.

Milburn, Colin. ‘Posthumanism’. In *The Oxford Handbook of Science Fiction*, edited by Rob Latham, 524–36. Oxford: Oxford University Press, 2014.

Mills, Linda. ‘Narrative Therapy’. In *Routledge Encyclopedia of Narrative Theory*, edited by David Herman, Manfred Jahn, and Marie-Laure Ryan, 375–76. London: Routledge, 2010.

Mithen, Steven. *The Singing Neanderthals: The Origins of Music, Language, Mind and Body*. London: Weidenfeld & Nicolson, 2005.

Montinaro, Antonio. ‘The Musical Brain: Myth and Science’. *World Neurosurgery* 73, no. 5 (2010): 442–53.

Moore, Stephen D. ‘Biblical Narrative Analysis from the New Criticism to the New Narratology’. In *The Oxford Handbook of Biblical Narrative*, edited by Danna Nolan Fewell, 27–50. Oxford: Oxford University Press, 2016.

Mosca, Valeria. ‘Crossing Human Boundaries: Apocalypse and Posthumanism in Margaret Atwood’s Oryx and Crake and The Year of the Flood’. *Altre Modernità* 9, no. Apocalisse 2012 (May 2013): 38–52.

Murphy, Francesca Aran. *God Is Not a Story: Realism Revisited*. Oxford: Oxford University Press, 2007.

Murphy, George. ‘Cosmology and Christology’. *Science and Christian Belief* 6, no. 2 (1994): 101–11.

Murray, Sean. ‘Food for Critical Thought: Teaching the Science Fiction of Margaret Atwood’. *Pedagogy: Critical Approaches to Teaching Literature, Language, Composition, and Culture* 14, no. 3 (Fall 2014): 475–98. https://doi.org/10.1215/15314200-2715814.

———. ‘The Pedagogical Potential of Margaret Atwood’s Speculative Fiction: Exploring Ecofeminism in the Classroom’. In *Environmentalism in the Realm of Science Fiction and Fantasy Literature*, edited by Chris Baratta, 111–25. Newcastle upon Tyne: Cambridge Scholars Publishing, 2012.

Naess, Arne. ‘The Shallow and the Deep, Long-Range Ecology Movement: A Summary’. *Inquiry* 16, no. 1–4 (1973): 95–100. https://doi.org/10.1080/00201747308601682.

Narkunas, J. Paul. ‘Between Words, Numbers, and Things: Transgenics and Other Objects of Life in Margaret Atwood’s *MaddAddam*’. *Critique: Studies in Contemporary Fiction* 56, no. 1 (2015): 1–25. https://doi.org/10.1080/00111619.2013.849226.

Nencini, Paolo, and Kathleen Grant. ‘Psychobiology of Drug-Induced Religious Experience: From the Brain “Locus of Religion” to Cognitive Unbinding’. *Substance Use & Misuse* 45, no. 13 (2010): 2130–51. https://doi.org/10.3109/10826081003713803.

Newberg, Andrew B., Eugene G. d’Aquili, and Vince Rause. *Why God Won’t Go Away: Brain Science and the Biology of Belief*. New York: Ballantine Publishing, 2001.

Nichols, David E. ‘Commentary on: Psilocybin Can Occasion Mystical-Type Experiences Having Substantial and Sustained Personal Meaning and Spiritual Significance by Griffiths et Al.’ *Psychopharmacology* 187 (2006): 284–86. https://doi.org/10.1007/s00213-006-0458-4.

Nigam, Sanjay K. ‘The Storytelling Brain: Commentary on “On Social Attribution: Implications of Recent Cognitive Neuroscience Research for Race, Law, and Politics”’. *Science and Engineering Ethics* 18, no. 3 (2012): 567–71. https://doi.org/10.1007/s11948-012-9378-3.

Northcott, Michael. *The Environment and Christian Ethics*. EBook. Cambridge: Cambridge University Press, 1996.

Northover, Alan. ‘Strangers in Strange Worlds: Margaret Atwood’s MaddAddam Trilogy’. *Journal of Literary Studies* 33, no. 1 (2017): 121–37. https://doi.org/10.1080/02564718.2017.1290384.

Nussbaum, Martha. *Cultivating Humanity: A Classical Defense of Reform in Liberal Education*. Cambridge, MA: Harvard University Press, 1997.

———. ‘Narrative Emotions: Beckett’s Genealogy of Love’. In *Why Narrative? Readings in Narrative Theology*, edited by Stanley Hauerwas and L. Gregory Jones, 216–48. Grand Rapids, Michigan: William B. Eerdmans Publishing Co., 1989.

Oord, Thomas Jay. *God Can’t: How to Believe in God and Love After Tragedy, Abuse, and Other Evils*. Grasmere, ID: SacraSage Press, 2019.

———. *The Uncontrolling Love of God: An Open and Relational Account of Providence*. Downers Grove, IL: Inter-Varsity Press, 2015.

Pace-Schott, Edward F. ‘Dreaming as a Story-Telling Instinct’. *Frontiers in Psychology* 4 (2013): 1–4. https://doi.org/10.3389/fpsyg.2013.00159.

Palmer, Alan. ‘The Mind Beyond the Skin’. In *Narrative Theory and the Cognitive Sciences*, edited by David Herman, 322–48. Stanford, CA: CSLI Publications, 2003.

Palmer, Clare. *Environmental Ethics and Process Thinking*. Oxford: Clarendon Press, 1998.

Parry, Jovian. 'Oryx and Crake and the New Nostalgia for Meat'. *Society and Animals* 17 (2009): 241–56. https://doi.org/10.1163/156853009X445406.

Paul, Diane R. 'Commentary on "Utopian Eugenics"'. In *Controlling Our Destinies: Historical, Philosophical, Ethical, and Theological Perspectives on the Human Genome Project*, edited by Phillip R. Sloan, 263–68. Notre Dame, Indiana: University of Notre Dame Press, 2000.

Payne, Michael. 'Critical Theory'. In *A Dictionary of Cultural and Critical Theory*, edited by Michael Payne and Jessica Rae Barbera, 153–54. Chichester: Wiley-Blackwell, 2010.

Peck, M. Scott. *The Different Drum: Community-Making and Peace*. New York: Simon and Schuster, 1987.

Peel, Robin. *Emily Dickinson and the Hill of Science*. Teaneck, NJ: Fairleigh Dickinson University, 2010.

Persinger, Michael A. *Neuropsychological Bases of God Beliefs*. New York: Praeger, 1987.

Peterson, Gregory R. 'Science and Religion, Methodologies'. In *Encyclopedia of Science and Religion*, edited by J. Wentzel van Huyssteen, Nancy R. Howell, Niels Henrik Gregersen, Wesley J. Wildman, Ian Barbour, and Ryan Valentine, 756–59. New York: Macmillan Reference, 2003.

Phillips, Gary A. 'The Commanding Faces of Biblical Stories'. In *The Oxford Handbook of Biblical Narrative*, edited by Danna Nolan Fewell, 585–97. Oxford: Oxford University Press, 2016.

Pias, Claus, ed. *Cybernetics: The Macy Conferences 1946–1953: The Complete Transactions*. Chicago: University of Chicago Press, 2016.

Pinchbeck, Daniel. *Breaking Open the Head: A Visionary Journey from Cynicism to Shamanism*. London: Flamingo, 2004.

Piper, Arthur. 'How We Became Posthuman: Ten Years On: An Interview with N. Katherine Hayles'. *Paragraph: A Journal of Modern Critical Theory* 33, no. 3 (2010): 318–30. https://doi.org/10.3366/E0264833410000933.

Possamai, Adam. *Religion and Popular Culture: A Hyperreal Testament*. Oxford: Peter Lang, 2005.

Possamai, Adam, and Sammy Bishop. 'Hyper-Real Religion, Digital Capitalism and the Pygmalion Effect'. *The Religious Studies Project (Podcast Transcript)*, 6 November 2017. http://www.religiousstudiesproject.com/podcast/hyper-real-religion-digital-capitalism-and-the-pygmalion-effect/.

Pressley, Cindy L. 'Using Ecotopian Fiction to Reimagine Public Policy: From a Resource-Based Narrative to a Competing Values Narrative'. *Administrative Theory & Praxis* 37, no. 2 (2015): 111–26. https://doi.org/10.1080/10841806.2015.1027570.

Price, Jeremy F., and Katherine L. McNeill. 'Toward a Lived Science Curriculum in Intersecting Figured Worlds: An Exploration of Individual Meanings in Science Education'. *Journal of Research in Science Training* 50, no. 5 (2013): 501–29. https://doi.org/10.1002/tea.21084.

Prickett, Stephen. *Narrative, Religion and Science: Fundamentalism versus Irony, 1700–1999*. Cambridge: Cambridge University Press, 2002.

Primavesi, Anne. *From Apocalypse to Genesis: Ecology, Feminism and Christianity.* Turnbridge Wells, Kent: Burns & Oates, 1991.

———. *Gaia and Climate Change: A Theology of Gift Events*. Abingdon: Routledge, 2009.

Quinn, Tristan. 'The Immortalist: Uploading the Mind to a Computer'. *BBC*, 14 March 2016. https://www.bbc.co.uk/news/magazine-35786771.

Ramachandran, V. S., and Sandra Blakeslee. *Phantoms in the Brain: Human Nature and the Architecture of the Mind*. Paperback edition. London: Fourth Estate, 1999.

Rankin, Marianne. *An Introduction to Religious and Spiritual Experience*. London: Continuum, 2008.

'Rare Bird Club'. BirdLife International, 2018. https://www.birdlife.org/rare-bird-club.

Raschke, Debrah. 'Margaret Atwood's MaddAddam Trilogy: Postmodernism, Apocalypse, and Rapture'. *Studies in Canadian Literature/Etudes En Littérature Canadienne* 39, no. 2 (2014): 22–44.

Rawson, Claude. 'Introduction'. In *Gulliver's Travels*, by Jonathan Swift, ix–xliii. edited by Claude Rawson and Ian Higgins, New ed. Oxford World's Classics. Oxford: Oxford University Press, 2005.

Reeves, Josh. *Against Methodology in Science and Religion: Recent Debates on Rationality and Theology*. London: Routledge, 2019.

Renz, Monika. *Hope and Grace: Spiritual Experiences in Severe Distress, Illness and Dying*. London: Jessica Kingsley Publishers, 2016.

Ridington, Robin. 'Beaver Dreaming and Singing'. *Anthropologica* 13, no. 1/2 (1971): 115–28.

Ridout, Alice. 'Margaret Atwood's Straddling Environmentalism'. *Comparative American Studies: An International Journal* 13, no. 1–2 (2015): 31–41. https://doi.org/10.1179/1477570015Z.00000000097.

Rieder, John. 'On Defining SF, or Not: Genre Theory, SF, and History'. *Science Fiction Studies* 37, no. 2 (2010): 191–209.

Ritchie, Sarah Lane. 'Does Contemporary Neuroscience Debunk Religious Belief?' In *Philosophy, Science and Religion for Everyone*, edited by Mark Harris and Duncan Pritchard, 71–81. London: Routledge, 2018.

Roberts, Adam. *The History of Science Fiction*. Basingstoke: Palgrave Macmillan, 2006.

———. *The History of Science Fiction*. 2nd ed. Basingstoke: Palgrave Macmillan, 2016.

Roberts, Michèle. 'Book Review: MaddAddam, By Margaret Atwood; This Epic Dystopian Journey through a Wasteland of High Science and Low Deeds Ends in Hope'. *The Independent*, 16 August 2013, Independent Online edition, sec. Reviews.

Rolston III, Holmes. 'Environmental Ethics and Religion/Science'. In *The Oxford Handbook of Religion and Science*, edited by Philip Clayton, 908–28. Oxford: Oxford University Press, 2008.

Rudd, Anthony. *Self, Value, and Narrative: A Kierkegaardian Approach*. Oxford: Oxford University Press, 2012.

Rukeyser, Muriel. 'The Dream-Singing Elegy'. *The Kenyon Review* 6, no. 1 (1944): 59–63.

Ruse, Michael. *Darwinism as Religion: What Literature Tells Us About Evolution*. Oxford: Oxford University Press, 2017.

Ryan, Marie-Laure. 'Cognitive Maps and the Construction of Narrative Space'. In *Narrative Theory and the Cognitive Sciences*, edited by David Herman, 214–42. Stanford, CA: CSLI Publications, 2003.

Sample, Ian. 'Genetically Modified Babies Given Go Ahead by UK Ethics Body'. *The Guardian*, 17 July 2018, UK edition, sec. Science. https://www.theguardian.com/science/2018/jul/17/genetically-modified-babies-given-go-ahead-by-uk-ethics-body.

Sanderson, Jay. 'Pigoons, Rakunks and Crakers: Margaret Atwood's Oryx and Crake and Genetically Engineered Animals in a (Latourian) Hybrid World'. *Law and Humanities* 7, no. 2 (2013): 218–39. http://dx.doi.org/10.5235/17521483.7.2.218.

Saunders, Ben. *Do the Gods Wear Capes? Spirituality, Fantasy, and Superheroes*. New Directions in Religion and Literature. London: Continuum, 2011.

Sawyer, Robert. 'Science and Salvation: "Human Ingenuity Will Give All of Us a Wonderful Future"'. *Maclean's* 116, no. 17 (28 April 2003): 48.

Scott, Ridley. *Blade Runner (The Final Cut)*. Warner Bros, 2007.

Shulgin, Alexander, and Ann Shulgin. *PIHKAL: A Chemical Love Story*. Berkeley, CA: Transform Press, 1995.

———. *TIHKAL: The Continuation*. Berkeley, CA: Transform Press, 1997.

Sismondo, Sergio. *An Introduction to Science and Technology Studies*. 2nd ed. Chichester: Wiley-Blackwell, 2010.

Sivertsen, Barbara J. *The Parting of the Sea: How Volcanoes, Earthquakes, and Plagues Shaped the Story of Exodus*. Princeton, NJ: Princeton University Press, 2009.

Smedes, Taede A. 'Arthur Peacocke'. In *The Blackwell Companion to Science and Christianity*, edited by J. B. Stump and Alan G. Padgett, 589–99. Chichester, West Sussex: Wiley-Blackwell, 2012.

Smith, Christian. *Moral, Believing Animals: Human Personhood and Culture*. Oxford: Oxford University Press, 2003.

Smith, James K. A. *Thinking in Tongues: Pentecostal Contributions to Christian Philosophy*. Vol. 3. Pentecostal Manifestos. Grand Rapids, MI: William B. Eerdmans Publishing Co., 2010.

Smith, Sidonie, and Julia Watson. *Reading Autobiography: A Guide for Interpreting Life Narratives*. 2nd ed. Minneapolis: University of Minnesota Press, 2010.

Snow, C. P. *The Two Cultures and the Scientific Revolution*. Cambridge: Cambridge University Press, 1959.

Sollereder, Bethany. *God, Evolution, and Animal Suffering: Theodicy Without a Fall*. Routledge Science and Religion Series. New York: Routledge, 2018.

Song, Robert. *Human Genetics: Fabricating the Future*. London: Darton, Longman and Todd, 2002.

Southgate, Christopher, ed. *God, Humanity and the Cosmos: A Textbook in Science and Religion*. Third Edition. New York: T&T Clark International, 2011.

———. 'Some Resources for Christian Theology in an Ecological Age'. In *God, Humanity and the Cosmos: A Textbook in Science and Religion*, edited by Christopher Southgate, 3rd ed., 225–54. New York: T&T Clark International, 2011.

———. *The Groaning of Creation: God, Evolution, and the Problem of Evil*. London: Westminster John Knox Press, 2008.

Squier, Susan M. 'A Tale Meant to Inform, Not Amuse'. *Science*, New Series, 302, no. 5648 (14 November 2003): 1154–55.

Stanley, Matthew. *Practical Mystic: Religion, Science, and A. S. Eddington*. Chicago: University of Chicago Press, 2007.

Starhawk. *The Earth Path: Grounding Your Spirit in the Rhythms of Nature*. New York: HarperCollins Publishers, 2004.

Sterling, Bruce. 'Slipstream'. *Science Fiction Eye* 1, no. 5 (1989): 77–80.

———. 'Slipstream 2'. *Science Fiction Studies* 38, no. 1 (2011): 6–10. https://doi.org/10.5621/sciefictstud.38.1.0006.

Stoeber, Orville. 'How the Music Came to Be'. The Year of the Flood, 2016. http://yearoftheflood.com/how-the-music-came-to-be/.

———. *Hymns of the God's Gardeners: Lyrics from The Year of the Flood*. Audio CD. London: Bloomsbury Publishing, 2009.

Stone, Ken. *Reading the Hebrew Bible with Animal Studies*. Stanford, CA: Stanford University Press, 2018.

Straine, Gillian K. 'A Future for Science and Theology in Pastoral Hermeneutics: Equipping the Shepherds'. In *Forty Years of Science and Religion: Looking Back, Looking Forward*, edited by Neil Spurway and Louise Hickman, EBook., 83–101. Conversations in Science and Religion. Newcastle upon Tyne: Cambridge Scholars Publishing, 2016.

Strehle, Susan. *Fiction in the Quantum Universe*. Chapel Hill, North Carolina: The University of North Carolina, 1992.

Stump, Eleonore. *Wandering in Darkness: Narrative and the Problem of Suffering*. Oxford: Clarendon Press, 2010.

Sutcliffe, Steven J., and Ingvild Sælid Gilhus. 'Introduction: "All Mixed Up"--Thinking about Religion in Relation to New Age Spiritualities'. In *New Age Spirituality: Rethinking Religion*, edited by Steven J. Sutcliffe and Ingvild Sælid Gilhus, 1–16. Abingdon: Routledge, 2014.

———, eds. *New Age Spirituality: Rethinking Religion*. Durham: Acumen, 2013.

Sutherland, Sharon, and Sarah Swan. 'Margaret Atwood's Oryx and Crake: Canadian Post 9/11 Worries'. In *From Solidarity to Schisms: 9/11 and After in Fiction and Film from Outside the US*, edited by Cara Cilano, 219–35. Amsterdam: Rodopi, 2009.

Suvin, Darko. *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*. New Haven, Connecticut: Yale University Press, 1979.

———. ‘On the Poetics of the Science Fiction Genre’. *College English* 34, no. 3 (1972): 372–82.

Svec, Michael, and Mike Winiski. ‘SF and Speculative Novels: Confronting the Science and the Fiction’. In *Science Fiction and Speculative Fiction: Challenging Genres*, edited by P. L. Thomas, 35–57. Critical Literacy Teaching Series: Challenging Authors and Genre 3. Rotterdam: Sense Publishers, 2013.

Sviland, Solbørg. ‘Instinct or Insight in Dystopia: Reading Margaret Atwood and Octavia Butler through a Darwinian Lens’. Master’s Dissertation, University of Bergen, 2011.

Swift, Jonathan. *Gulliver’s Travels*. Edited by Claude Rawson and Ian Higgins. New ed. Oxford World’s Classics. Oxford: Oxford University Press, 2005.

Taves, Anna, and Michael Kinsella. ‘Hiding in Plain Sight: The Organizational Forms of “Unorganized Religion”’. In *New Age Spirituality: Rethinking Religion*, edited by Steven J. Sutcliffe and Ingvild Sælid Gilhus, 84–98. Abingdon: Routledge, 2014.

Teilhard de Chardin, Pierre. *The Human Phenomenon*. Translated by Sarah Appleton Weber. New ed. Brighton: Sussex Academic, 2003.

‘The Completion of the Sequence and Remaining Goals’. National Human Genome Research Institute, 27 December 2012. https://www.genome.gov/12011241/the-completion-of-the-sequence-and-remaining-goals/.

The Green Bible. London: HarperCollins Publishers, 2008.

The University of Edinburgh. ‘£2.4 Million Grant to Explore Theologies of Nature’. The University of Edinburgh, 25 June 2019. https://www.ed.ac.uk/divinity/news-events/latest-news/grant-for-god-and-nature?fbclid=IwAR1QuAjTzXm5Lh5LC44khF9sAVu6miANRo75Cpt69KRzIfeMX40FcLP6A8c.

———. ‘God and the Book of Nature: Building a Science-Engaged Theology of Nature’. The University of Edinburgh, 19 June 2019. https://www.ed.ac.uk/divinity/research/projects/god-and-the-book-of-nature.

Thijssen, Johannes M. M. H. ‘Natural Philosophy’. In *Encyclopedia of Medieval Philosophy*, edited by Henrik Lagerlund. Dordrecht: Springer, 2011.

Thomas, P. L. ‘Introduction: Challenging Science Fiction and Speculative Fiction’. In *Science Fiction and Speculative Fiction: Challenging Genres*, edited by P. L. Thomas, 1–13. Critical Literacy Teaching Series: Challenging Authors and Genre 3. Rotterdam: Sense Publishers, 2013.

Thompson, Evan. ‘Neurophenomenology and Contemplative Experience’. In *The Oxford Handbook of Religion and Science*, edited by Philip Clayton, 226–35. Oxford: Oxford University Press, 2008.

Todorov, Tzvetan. ‘Structural Analysis of Narrative’. In *The Norton Anthology of Theory and Criticism*, edited by Vincent B. Leitch, translated by Arnold Weinstein, Second Edition., 2023–30. New York: W. W. Norton & Company, 2010.

Van Slyke, James A. *The Cognitive Science of Religion*. Ashgate Science and Religion Series. Farnham: Ashgate, 2011.

Vassilieva, Julia. *Narrative Psychology: Identity, Transformation and Ethics*. EBook. London: Palgrave Macmillan, 2016.

Vials, Chris. 'Margaret Atwood's Dystopic Fiction and the Contradictions of Neoliberal Freedom'. *Textual Practice* 29, no. 2 (March 2015): 234–54. https://doi.org/10.1080/0950236X.2014.993518.

Vint, Sherryl. 'Embodied Texts, Embodied Subjects: An Overview of N. Katherine Hayles'. *Science Fiction Film and Television* 1, no. 1 (2008): 115–26.

Vivanco, Luis A., ed. 'Religion'. In *A Dictionary of Cultural Anthropology*. Oxford: Oxford University Press, 2018.

Wagner, Erica. 'The Conversation: Margaret Atwood'. *The Times*. 15 August 2009, sec. The Review.

Walsh, Andy. *Faith Across the Multiverse: Parables from Modern Science*. Peabody, MA: Hendrickson Publishers, 2018.

Watts, Fraser, and Geoff Dumbreck. 'Psychology and Theology'. In *God, Humanity and the Cosmos*, edited by Christopher Southgate, 3rd ed., 204–22. London: Bloomsbury, 2011.

Weitzman, Steven. 'Before and After The Art of Biblical Narrative'. *Prooftexts* 27, no. 2 (2007): 191–210.

West, Gerald. 'Global Thefts of Biblical Narrative'. In *The Oxford Handbook of Biblical Narrative*, edited by Danna Nolan Fewell, 573–84. Oxford: Oxford University Press, 2016.

Westermann, Claus. *Creation*. Translated by John J. Scullion. London: SPCK, 1974.

Whitcomb, John C., and Henry M. Morris. *The Genesis Flood: The Biblical Record and Its Scientific Implications*. 50th Anniversary edition. Phillipsburg, NJ: P&R Publishing, 2011.

Wiebe, Phillip H. 'Religious Experience, Cognitive Science, and the Future of Religion'. In *The Oxford Handbook of Religion and Science*, edited by Philip Clayton, 503–22. Oxford: Oxford University Press, 2008.

Williams, Rowan. *The Edge of Words: God and the Habits of Language*. London: Bloomsbury, 2014.

Wilson, Edward O. *On Human Nature*. London: Penguin Books, 1978.

Wisker, Gina. 'Nothing Wasted: Engaging Values and the Imagination: How Can Working with Feminist Speculative Fictions Enthuse and Engage Students with Social Justice and Sustainability in an Age of Austerity?' *Journal of Gender Studies* 23, no. 3 (2014): 302–16. https://doi.org/10.1080/09589236.2014.909721.

Wolfe, Cary. *What Is Posthumanism?* Posthumanities 8. Minneapolis: University of Minnesota Press, 2010.

Wood, Susan. 'Introduction'. In *The Language of the Night: Essays on Fantasy and Science Fiction*, edited by Ursula K. Le Guin and Susan Wood, Revised ed., 5–12. London: The Women's Press Ltd, 1989.

Woolf, Virginia. *To the Lighthouse*. Annotated ed. London: Penguin Books, 1992.

Wright, Jaime. ‘Emily Dickinson: A Poet at the Limits’. *Theology in Scotland* 24, no. 1 (2017): 35–50.

———. ‘In the Beginning: The Role of Myth in Relating Religion, Brain Science, and Mental Well-Being’. *Zygon: Journal of Religion and Science* 53, no. 2 (2018): 375–91.

———. ‘This World Is Not Conclusion: An Analysis of the Limits of Religious and Scientific Knowledge as Portrayed in Emily Dickinson’s Poetry’. Master’s Thesis. Edinburgh University, 2015.

Wright, Laura. ‘Vegans, Zombies, and Eco-Apocalypse: McCarthy’s the Road and Atwood’s Year of the Flood’. *ISLE: Interdisciplinary Studies in Literature and Environment* 22, no. 3 (1 September 2015): 507–24. https://doi.org/10.1093/isle/isu096.

Zimmerman, Michael. *Contesting Earth’s Future: Radical Ecology and Postmodernity*. Berkeley, CA: University of California Press, 1994.

Zipp, Yvonne. ‘MaddAddam’. *The Christian Science Monitor*, 13 September 2013, sec. Books.